

THE LITERARY GAZETTE

AND

Journal of the Belles Lettres, Arts, Sciences, &c.

No. 1706.

LONDON, SATURDAY, SEPTEMBER 29, 1849.

PRICE 4d.
Stamped Edition, 5d.

REVIEWS OF NEW BOOKS.

THE IRISH IN PARLIAMENT.

Recollections and Experiences during a Parliamentary Career from 1833 to 1848. By John O'Connell, Esq., M.P. 2 vols. Bentley.

We expected something more piquant and perhaps ludicrous from this publication, which is in truth a filial glorification of the late Mr. O'Connell, reflecting a considerable portion of its splendour upon his son, the author of the work. It seems at the close as if a continuation were contemplated; in the event of which we might expect matters more personally entertaining than aught that occurs in the second volume, which departs almost entirely from the index of the title, and gives us accounts of the Roman Catholic Repeal Bill, 1829, 30, 31; the Repeal agitation in Ireland during later years; the Agitator's extraordinary exertions in both cases; the successful electioneering tricks and bold measures of the *Repealers* on many occasions; the monster-meetings; the explosion of Young Ireland, and the failure of both Moral and Physical force. As the Catholic Bill passed, as Repeal is no longer rampant nor even a watchword, as O'Connell is dead and his power and influence buried with him, as monster-meetings are extinguished, and Young Ireland banished, these topics do not possess the interest they did two or three years ago; and therefore it is only as partisan materials for history that they are worth what they are worth from the pen of our Irish Pius Eneas. They are curious, however, in their details of the wonderful energy of his Anclises. From the broadest national stirrings, up to the minute movements of obscure local newspapers, the manoeuvres of the humblest agents, the mystifications of all classes, and the special acts of the least of the conspirators (we use the word simply to indicate multitudes combined to forward the same cause), Dan is shown to have been at all in the ring—the director, mainspring, Bully Bottom, contriver and mover of the whole machinery and those who wrought it. The character stands out in marvellous alto-relievo; a striking study of indomitable energy, surpassing subtlety, invincible assurance, and a readiness of resource available upon every turn of the wheel, whether high or low.

From the volume occupied with these points we have little to extract as examples of the work, for we must confine ourselves to its particular, and remit to the reader its general features. And since nothing can be more particular than individual portraits, we will begin with Mr. John O'Connell's artistic attempts in that species of painting:—

Mr. Roebuck.—"Few men possess in so striking a degree, the dangerous and unhappy gift of sarcastic powers, as Mr. Roebuck. It is a dangerous and unhappy gift to its possessor, as it robs him of friends, while it procures for him plenty of applauders and backers at the moment: each man being glad to have the lash directed against his neighbours, and averted from himself. The effect of Mr. Roebuck's other talents—and they are not in small measure either as to quantity or quality—is grievously marred by this propensity to bitterness, and the likelihood of his ever attaining the position of a political leader rendered almost naught. Men like to be led, indeed, and it is said of political parties, at least in this country, that they do not object to having what sailors call a 'tand hand' kept over them; or if they grumble, still are found to submit to it far better than they would to a guidance attempted in milder, and more considerate fashion. But no man likes to be perpetually in hot water; and no man likes to be the butt of his leader's sarcasms: and whoever follows

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John Arthur Roebuck must make up his mind to both contingencies; for that gentleman is never—I will not say *contented*, for content and he have nothing in common—but is never in his glory, save when over the shoulders, and nearly over head, in the hottest water; and when he has not an opponent to assail, will turn his fine-edged and glittering steel upon a friend.

"Mr. Roebuck's person, as well as manner and delivery, are well known; the former small and spare, but well formed; the head highly intellectual, but the countenance telling tales of the acrimony within. His voice is harsh, but clear; and his delivery a little too sharp and dogmatic to be altogether pleasing; while at the same time it is undoubtedly impressive and telling.

Mr. Macaulay.—"Not even all Macaulay's sparkling talent, unflinching boldness, and most laborious ingenuity in the great Whig party pamphlet that he is publishing as a History of England from the time of the Revolution, have enabled him to avoid making damning confessions as to the characters of the prime agents in the expulsion of the weak and arbitrary, but quite as much *sinned against as sinning James*.

"Mr. Macaulay, in the debates of ten years previously, on the Irish Coercion Bill of 1833, in his first great display in a reformed (or, I believe, *any*) House of Commons, experienced the fate which genius most richly merits when it degrades itself to ignoble purposes. He came out with an elaborately prepared oration in favour of the new measure of tyranny for Ireland; and it proved a most elaborate and utter failure.

"On the occasion of the only time that the lyre of the great Magician of the North was heard to creak—that of his '*carmen triumphale*' on the victory of Waterloo—some such distich as the following was addressed to him:—

"Then none by pistol or by shot
Fell half so flat as Walter Scott!"

"It might have been paraphrased with regard to the brilliant Macaulay's assault upon Ireland and defence of coercion, for he fell flat indeed, and flat in the mud!"

"How admirably he has since redeemed his fame it is not at all needful here to detail. The gushing richness and fulness of his eloquence absorbs, fascinates, and carries away his auditory, making them utterly oblivious, or, at least, disregarding of the occasional too great evidences of art and study. He never showed himself ready at an impromptu speech; but the sparkling brilliancy of his prepared efforts excused, covered, and most abundantly atoned for the attendant delays and infrequencies of their exhibition.

"There was, however, a repetition of the *fall* in his declamation against Repeal in 1843. Sentence after sentence came out *ore rotundo*, stating alternative after alternative that he would prefer to the measure demanded by the people of Ireland—the restoration of their own parliament—each sentence ending with a '*no, never!*' strongly suggestive of the popular song, or burden of a song,

"Did you ever? No, I never!" &c. &c.

"In sober sadness, it was not worthy of his talents and character to set himself thus up in petulant and puny opposition to a constitutional demand of an aggrieved people. It ought not to have been made an occasion for an oratorical display, and for what might indeed be called an empty oratorical bravado.

* "Might the paraphrase run thus?"

"Then none did show so shy and *smally*,
As Thomas Babington Macaulay!"

"Of his History, any criticism here would be out of place: but, as a Catholic, I enter protest against it for gross sectarian bigotry, undeniably visible, under all the assumption of candour and historic truthfulness. And the general reader has a right to complain, when he finds himself called upon to accept, as accurate recitals of historic events, details and facts, warped and coloured by the party feelings of the day.

"But as far as regards the matter of the protest, made in the preceding paragraph, it is only justice to Mr. Macaulay to say, that he is not singular among English writers of all ranks in the literary hierarchy, in the voluntary, or (as I hope in his case) involuntary, *suppression veri*, and *suggestio falsi*, where Catholicism is concerned."

Mr. Montgomery Martin is even worse treated than Mr. Roebuck or Mr. Macaulay. In 1830-1, organised meetings being prohibited, "public breakfasts" were got up on a large scale, at Home's hotel on Usher's Quay, where, while some made patriotic speeches, the rest of us devoured hot rolls and hot chops, and drank indifferent coffee and well watered tea, with great assiduity and perseverance, for the good of our country.

"At one or two of these breakfasts, we were graced by the attendance of Mr. Montgomery Martin, the redoubtable pamphleteer against repeal. He was then, not only an ardent repealer, but something more—a good deal more than my father at all fancied.

"During the proceedings he drew up on his head a red night-cap—as the Phrygian cap, the cap of liberty; and when my father insisted upon its removal, he took it off, only to put it on again when he had changed his place so as not to be seen from the head of the table. But the obnoxious cap was doomed to another and a final eclipse and disaster. The mirth of the gay meeting was rudely broken by a magistrate, who, followed by several policemen, presented himself at the door with the last new proclamation in his hands; and proceeding forthwith to read its contents, called upon all present to disperse. Mr. Martin seemed to consider it as an order to *disappear*, for he sunk, cap and all, under the table, and was seen no more!

"As another instance of that gentleman's *quondam* devotion to the cause of repeal, which he has since assailed with so much misplaced ability, ingenuity, and dexterity, it may be recorded that in 1832, or 1833, he earnestly solicited Mr. O'Connell's support to a repeal newspaper he proposed to establish in London. Mr. O'Connell told him the attempt was hopeless: the repeal interest being far too weak even to afford a temporary support to an undertaking necessarily so costly. Mr. Martin would not be dissuaded; and Mr. O'Connell finally gave him a subscription, warning him, however, at the same time, that beyond the amount then given he could not go, as he saw not the least chance of success for the project. Mr. Martin persevered; and in three weeks' time finding the loss severe, applied to Mr. O'Connell again, and was very angry to find that the latter reminded him of his previous warning."

We should like to hear Mr. Martin's version of this story; but even he fares softly in comparison with Lord Stanley, who is everywhere coloured up as a sort of demon, breathing nothing but hate against Ireland, and devising nothing but cruelties and oppression against the Irish people.*

* We must presume that his Lordship has repented, and is endeavouring to repair the atrocities imputed to him, if we can believe the *Clonmel* (Tipperary) *Chronicle* of this week, which says,—"*Lord Stanley's visit to his Irish tenantry has been attended with the best results. The following is an instance:—A poor tenant, quite close to Ballykisteen*

Feargus O'Connor seems also to be an object of the author's peculiar dislike. He even *un-names* and *un-Trishes* him, and says,—

"Feargus O'Connor made what would be called in Ireland a 'rollicking,' rattling, off-hand sort of speech, in his ordinary fashion: 'full of sound and fury, signifying nothing.'"

"It is needless to call the roll of the other speakers. Even Peel failed to interest; but for an obvious reason. The debate had been so feebly sustained, that there was no occasion to depart from the usual English policy of appearing to consider the 'Repeal' a question too wild for argument. He caused, however, considerable amusement by reading from some old record of barbarous times, the ceremonial of a kingly election in Ireland; where the successful candidate had to bathe in *broth*, and afterwards to drink up his own bath—a ceremonial from which it of course cannot be considered otherwise than a very natural and obvious supposition that we derive the popular phrase so common in parts of Ireland, of a *broth of a boy*!"

"Sir Robert Peel applied the description to Feargus O'Connor; as the latter might be expected to find himself, were the ancient Irish monarchy, or monarchies, dating from the time of the Christian era, to be restored and consolidated in his august person. Sir Robert Peel, however, was doubtless in ignorance, that Ireland has no right to lay claim to the ancestry of the honourable member for Nottingham. He owes the distinguished honour of his nativity to the circumstance of the coming over from England, and settling in her southern province, of his grandfather: or, peradventure, his great-grandfather, a stout, shrewd, and active Essex man, of the name of Conyers. He had speedily become the possessor of a good estate in the county Cork, that had slipped through the fingers of some spendthrift, whose family dated in Ireland perhaps from a century before: when its then representative had followed the fortunes of Cromwell's lieutenants in the South, as a 'thorough godly' trooper, or a 'chosen vessel' of a drummer; and profited accordingly, on the native Irish being robbed of their lands.

"The strange *Sassenach* name of Conyers was ere very long transformed by the Celtic tongues of his new neighbours into Connors, and thence into Connor. After the latter change, and when the penal laws had ceased to render the Milesian prefix of 'O' or 'Mac' an abomination in the eyes of the 'English garrison,' the transition was easy to the aristocratic and once princely title of O'Connor; in which the descendants of the worthy Essex immigrant or colonist, at present delight. England, therefore, in adopting the present most notable bearer of this transmuted name, is but reclaiming her own; and in so far as the future may be judged of from the present and the past, there does not appear to be any very great reason to apprehend that the sister country will be moved by any jealousy or churlishness to resist or dispute the claim."

To conclude these, we copy a bit of a sketch of the sketcher himself:—

"I came out of my shell (says he) in a dab-click style. Not out of an egg-shell; for I was too old a bird for that: but out of the *moral* shell, (if the phrase may be used,) in which take refuge the victims of morbid constitutional slowness, from the many rough rubs they are doomed to feel in life.

took the earliest opportunity of waiting on his Lordship, for the purpose of representing that his land was rated too high. He found him not only accessible, but ready to hear all that he had to say on the subject, and received for an answer that the case would not be forgotten. Next morning, to the surprise of the farmer, on walking out on his land, he met his landlord with a couple of labourers examining its quality. Lord Stanley acquiesced in his sentiments, and ordered his agent to make a proper reduction in the rent." Some important meetings of the rate-payers of the Tipperary Union have been recently held, with a view to consider the embarrassed position of the ratepayers. Lord Stanley, who is still at Ballykisteon, attended these meetings. To-day his Lordship went to Cashel for the purpose of inquiring into the complaints which prevail there, in reference to the *poor law* in which the Poor Law is administered. The Tipperary people are almost unanimous in calling for the formation of an elected board, and there is every reason to hope that their wishes will be acceded to.

"What the struggle in such cases may be, is a matter of no interest except to the individual sufferer; or perhaps in a remote degree to those who happen to be similarly cursed. Of all drawbacks and difficulties to an unfortunate agitator *mauvaise honte* is decidedly the heaviest; and as this demon can never be wholly exorcised, unless conquered in early life, the wight thus afflicted, who may be luckless enough to have politics and a public part thrust upon him, has to fight a new and severe battle on each new occasion for his coming forward.

"Shortly after leaving school I had thought to oppose the proposition for dissolving the Catholic Association (in March, 1829), when that step was mooted at one of the usual weekly meetings of that body, and had got on my legs three times to make the opposition; but,

"Obstupui, steteruntque comae; et vox faucibus hæsit!" and that triumph for *sheepishness* at the outset was not recovered for eleven long years, and then and since but imperfectly.

"Let me give one counsel to all who find this evil influence upon them at the outset of life, checking their energies, chilling their hearts, and impeding in every way their usefulness. *Fight against it at first, if possible; but first or last, give it no quarter, for it will give you none.*

"It will cast as it were a spell about you, making you say and do often what you least would wish to have said or done; often again preventing you from words or actions that your judgment would recommend; teaching others to feel the distrust of your opinions and capacity that comes down like a bleak rain-cloud upon yourself at times, with or without cause or reason, proximate or remote; and too frequently condemning its victims to a more than ordinary experience of the disappointments, mortifications, regrets, and bitternesses of all kinds, which chequer the life of man."

It must be a matter of congratulation that the author and M.P. has almost altogether got rid of his *sheepishness*; especially as, if he had not, the public would never have been favoured with this book, for some further remarks on which, *vide* next *Literary Gazette*.

NEW POET.

Penmaen-Mawr, and Day-Break: Poems. By George Haslehurst, Esq. Saunders & Otley.

A NEW POET (we mean a writer worthy of the name) does appear now and then, and it is always with pleasure we offer him a public welcome. Such, to our judgment, is the author of *Penmaen-Mawr*. Not without critical faults in composition, or the blemishes incidental to the earlier publications of genius, Mr. Haslehurst possesses merits which mark him of the superior order—the order that is sure to rise to higher regions from its first essays in flight. There is one feature from which we always augur well. He is no imitator, save in adopting the style of versification of which Scott may be considered the model. In other respects, he takes and follows his own course, and in a manner which requires only to be pursued to acquire for him that celebrity which this single volume would have won in the eighteenth century, but which in our prolific times it needs a repetition of successes to attain. For a Poet in our day cannot spring up at once, like Minerva from the head of Jove, in full might and majesty. He must be matured by degrees, even should the last touches be less efficient than the first: readers will not, now, be taken by storm.

Nor do we intend to say that this work is of an order to produce such a result. On the contrary, it is more gentle than striking, more pleasingly descriptive than energetically forcible; and it is on its persuasiveness and beauties that we are led to consider it the true thing. But it is our duty to show this, and we shall only pause a few moments on the preface before we endeavour to perform the agreeable task. In this the author remarks,—

"There is too much head, and too little of heart, now-a-days. The finer sensibilities and sympathies of our nature are crushed and stifled, in the present

age, by the all-pervading homage that is paid at Mammon's shrine. A vile homage!—that shall ultimately subjugate the high-born race of Albion's sons to a tyranny more arbitrary and despot than that of the meanest despot that ever swayed the sceptre over a servile race of slaves! Still, in the hearts of the chosen few,

"Till the loud clarion's dreadful roll
Shall rend the globe from pole to pole,—
Till worlds and systems sink in fire,
And Nature, Time, and Death expire."

shall the poet, above all others, 'see his honours shine.' 'Yes, positively, the poet; for of all writers, he has the best chance for immortality. Others may write from the head; but he writes from the heart,—and the heart will always understand him."

This also is our faith, and we look to a period, not very distant perhaps, when the cultivation of the Human Heart will resume its sway more in proportion to the cultivation of the Head, and Hands too, than has of later years obtained among several generations of mankind. There is a reaction in all things, and it is impossible, even by a course of worldliness and sordid pursuits, so to deteriorate and harden the general Heart, that fine, good, and elevated feelings shall not reassert themselves, and pervade a large inheritance of civilized life. This is the only great and real Socialism, and a Socialism not only not based on Equality, but whose essence is the reverse; for where can there be a more distinct difference than between the master minstrel and glorified teacher, and his reverential worshippers looking up to him as a Being of a far superior nature and power. Communism is indeed no part of the poetical creed or dream. In political reveries it may be delusive enough to hold out that the strong man and the weak, the laborious man and the idler, the clever man and the foolish, should enjoy the same immunities, and share and share alike in the goods of the common earth; but such nonsensical tenets never enter into the realms of Poesy. They are left as phantoms by the Idealists to the Realists. Those to whose hearts and souls the Muses speak, would as soon think of Homer, Milton, and Shakspeare being on an Equality with the lowest heroes of the Dunciad, and that all that ever capped a couplet of doggerel were alike entitled to the fruits of Fame! But true to speculation. *Penmaen-Mawr* is a story of an Eisteddfod, one of the national Welsh festivals, which are so redolent of the old Bardic influences, and so happily conducive to the diffusion of the best sympathies among the living race. On this a love romance is engrafted, and the period is chosen when our Queen, then the youthful Princess Victoria (1835 or 6), was, with her mother, the Duchess of Kent, present at the annual celebration at Beaumaris Castle. The opening of the poem affords us a fair example of the writer's talent for describing the aspects of natural scenery:—

"The sun, in setting splendour, threw
His parting beams of radiant hue
On mountain, cliff,—on tree and tower,
Gilding the heights of *Penmaen-Mawr*,
Whose giant mass of frowning rock
Might well withstand the earthquake's shock,
And seems like sentinel to stand
The guardian of that mountain land,
Whose soaring summits rise in air
As if they loved to rend there,
And daily with the storms that blow
Above the dark ravines below.

"A thousand tints of golden light
Are streaming from the western sky,
And flashing from the mountain height,
Tinging, with bright and varied dye,
The placid waters as they flow
All hitherlies beneath the glow
Of evening, as afraid to wake
The echoes of the hills, or break
The voiceless silence of that hour,
Whose hallowed beauty hath the power
To soothe the spirit, and controul
The jarring tumult of the soul,—
Relieve the overburdened breast,
And calm the passions into rest."

To avoid the prolixity of commentary, we have marked in italics what seems to us beautifully expressed, as in the later evening, when the poet says,—

" Methinks, at such an hour as this,
"Twere sweet to breathe the soul away
To realms of never ending bliss,—
To regions of undying day,—
Where everlasting spring-time reigns,
And suns eternal glid the plains!"

From evening we glide into morning, and oft as
we have heard the praise of its minstrel sung, we
fancy the following one of its sweetest tributes:—

" 'Tis morning! and the golden sun,—
His course of glory just begun,—
Reveals the matchless world of light,
And opens to the astonished sight
Bright gems of beauty—with each ray
That ushers in the dawn of day,—
As,—rising in the unclouded blue
Of highest heaven,—he brings to view
The primal splendour of the morn
Rejoicing for his glad return.
Up springs the lark, and mounting high,
Begins his carol in the sky,—
That joyous song—so full of glee—
So rich in notes of melody,—
That he who has not heard him sing,
While mounting on ecstatic wing,—
The ravish'd joy can never share
Of this bright spirit of the air—
Aloft,—wild warbling through the sky,—
Nor know the joys of melody.—
Thou only bird that deign'st to sing
While soaring on triumphant wing,—
Thou joyous bird!—to hear thy song,
I've paced the dewy fields along,—
And with a rapture only known
To hearts that love thy gladden'd tone,—
Flung from some silver cloudlet's rim,—
Have heard with bosom bounding high,
The music of thy matin-hymn,—
Thou free-born minstrel of the sky!—
Methinks 'tis such a joy to hear—
That if on earth a taste there be,
Of the rich music of that sphere—
That wild, angelic minstrelsy,—
Where seraphs strike their harps of gold,
And raise the harmonious concert high,—
While through the heaven of heavens is roll'd,
The deep-toned chorus of the sky,—
The richest note that's borne away
Surpasses not thy joyous lay!
And should our disembodied soul
Have left its clay-cold bonds that bind,
And wing'd its flight beyond the pole—
Nor drank the rapture of thy strain,—
'Twould sigh to leave this world behind,
And languish to return again!"

As this is the only other quotation we propose
taking from "Penmaen-Mawr," we shall make it our
text for pointing out the blemishes to which we
alluded in our opening observations. There are in
it forty-six lines, and yet in this brief space the
rhyme *sky* occurs no less than four times, and three
of them to the word *high*, whilst in the other instance
it is made to rhyme with *melody*, only five lines be-
fore *melody* chimes to *glee*. Now, this is, to say the
least of it, an evident want of care and polish. It does
not hurt the sentiment, but it cannot be accepted as
correct versification; and it is a blot which is too
common throughout the poem. Within the first
seventy or eighty lines, for example, we would not
count how frequently and closely the rhyme *day* occurs,
or the repeat of *hour* and *power*, and *flow* and *glow*
and *view*, page 16, not rhyming together, but to other
words in the sequence of four lines; and we will add
the phrase *fairly* as another instance within these
bounds for critical animadversion. If we did not
argue well of our author, we would not dwell on
points like these; but for the lasting in poetry there
must be painful execution as well as vivid conception.
In the same spirit we would object to the division
of the lines,—

"Where, the inhabitants with white
Robes of unspotted brightness thrown
Around them."

To finish our unwilling censures,—there are equal
evidence of haste and a number of prosaic lines in
"Daybreak." More this deponent sayeth not, but
quotes a spirited passage from that piece:—

"I love to look upon a winter's day;
When the bright snow comes dancing to the earth
With mirthful movement; and the myriads
Of falling flakes are woven by the winds,
And like a mantle overpread the world,—
Seen they not glad, as from their far-off home
They near the bosom of this glorious Earth,
And weave the dance, like the young things of life?
Still ever and anon,—
They feel the summons of the glorious sky,

Nor of their birthplace in the upper air
Unmindful, they ascend. And now, as one
Contending with divided thoughts, they stand
A moment still; then suddenly rush down
Like winged birds between the sky and plain;
Lost in uncertainty, then whirl around
Like insects in the summer evening air.—
Anon, with altered purpose, they pour down
In one strong, steady band, like racers, who
With swiftest footstep, and high-bounding hearts,
Stretch forward to the prize; or slowly down
They sink reluctantly, like Autumn leaves
Parting unwillingly from the limber sprays
That through the livelong summer upwards throw
Their faces to the sunbeams. But the glad,
The uncertain, swift, the strong, and the reluctant,
Find the same resting-place, and the same home,
Together with the myriads of mankind,
Whose generations, present, past, or future,
They truly image. And yet how unlike!
They spread the Earth not with decay, but beauty;
While feeble man, exulting in his power,
Proud of his feigned prerogative to slay,
Of Eden makes a wilderness!"

Now, though we said we would not quote farther
from "Penmaen-Mawr," we are inclined to evade our
assurance by copying (not exactly from the narrative
itself, but) from the Minstrel's prize song, a few lines
wherewith to conclude:—

"Far be it from a nameless bard—to pluck one laurel-
bough
From the chaplet of the glorious dead, that decks their
honour'd brow;—
Let frankincense,—and myrrh,—and balm,—upon their
altars rise,
While the vapour from the incense wreath'd—goes curling
to the skies!
Thy undying fame,—and the deeds they've done,—shall for-
ever be handed down,
And the lapse of ages shall not snatch from their brow the
immortal crown—
Begg'd with stars of living light,—whose glory cannot
die
Like the sunset-hues that gather round the gorgeous Western
sky!
Oh!—never let this our father-land, in the splendour of its
prime,
Forget the feats of the mighty dead,—or the deeds of the
olden time,—
The reverence for the glorious past,—the love for the days
of old,—
Is the firm sheet-anchor of Britain's strength,—her im-
pregnable stronghold!
While empires great,—in their pride of state,—seem'd lifted
up on high,
And towering above the Earth,—as if their glory could not
die,—
The restless,—reckless love of change—for the sake of
change alone,
Sapp'd the foundations of their strength,—and their glory
all was gone!
But shall we then—with the ardent love for the days of
other years,
Oblivious be of the solid worth that in our own times
appears?
Nay!—shall we not with a prophet's eye—pierce through
the future's veil,—
And predict the future's destiny,—and foretell the future's
tale?
Oh! Brightest gem—in the diadem that decks her royal
brow,—
Thy mother's pride! thy wisest guide,—who sits beside thee
now,—
How many unborn tongues shall bless the wisdom and the
worth,—
The tender care,—the judgment rare—presiding o'er thy
birth!
Aye,—many an eye—all anxiously—looks upward to thee
now,
That shall hail the day of thy glorious sway, and before thy
sceptre bow.
For Victoria's name shall eclipse the fame of the mightiest
Queens of yore,—
And the minstrel's lays shall echo the praise of her worth
from shore to shore."

HIGHLAND SPORTING.

*Rocks and Rivers; or, Highland Wanderings over
Craig and Corrie, &c.* By J. Colquhoun, Esq.,
Author of the "Moor and the Loch." Murray.

A SUPPLEMENTAL performance, not quite so spirited
as its precursor; but as nobody that ever enjoyed
Highland sporting has been known to tire of relating
their adventures and exploits, we are not surprised at
Mr. Colquhoun giving us another "skreed" of his
favourite and enthusiastic pursuits. Nor can his
recollections be read without interest, either by those
who have been there or by those who have not; and
Prince Albert, the Prince of Wales, Lord John Russell,
and Sir Robert Peel will start up to the mind's eye to
people the scene, stalk the red-deer, strike the trout,

hit the blackcock, or miss the roe. We picture the
fun it must be to the Queen herself to get away from
the semi-royal Balmoral with her Consort to the Hut,
and thinking no more of the cares of state than the
meanest of her subjects. How they must laugh at
the cringing of courtiers among the free denizens of
the forest, forget the solemn servilities of ceremony
when the heath-cock crows them to their morning
repast, and in the elasticity of the springy heather
find a more delightful carpet than ever was cut from
Turkish or Persian loom. It was only a Highlander
(one of the Duff clan too*) who in youth relished, to
the utmost, joys like these, who could sing of similar
sports in another Quarter of the Globe:—

"Gaily we follow
The stately Koodoo,
Eland or Cauna
O'er wild and karroo,
Springboks are leaping
In herds on the plain,
Boschbok and Panther
Will shun us in vain,
Lordly Rhinoster
Shall bow to our sight,
And e'en the gaunt Lion
Succumb in the fight!"

"Ourebis playful
And Klipspringers there,
Steenbok and Grysbok
Shall furnish our fare,
Gensboks so warlike
And Buffaloes too
Shall yield us rare sport
With the dark brindled Gnu!"

Well, then, we must imagine the chase, in its
natural condition, to be one of the most exciting
pastimes to which men in the trammels of the world's
cares and business can turn for renovation of health
and refreshment of mind. It prevails everywhere,
and when not prostituted into the poulterers' trade of
batue, or the butchers' of having animals driven up
to the guns, but manfully followed amid exertion,
fatigue, and the exercise of skill is—is enough to
make us throw down our pens, tear our paper, and
burn our books. *O Rus quando, et cetera!* In this
humour from Mr. Colquhoun, we shall only take a
few characteristic examples. What would Frank
Forester say to the following on catfishing a salmon
ferox of 15 lb. weight:—

"I had killed in Loch Vennacher, the year before,
with single gut, a clean salmon which weighed seven-
teen pounds when brought home. This salmon did
not make near so fierce a run as the Loch Awe trout
with gimp. I have heard gentlemen speak slightly
of the best trout, when compared with salmon; but
let them have one of these Loch Awe monsters on
their hooks, in as good condition as mine was, and I
venture to say they will not complain of the want of
mettle in the trout. I have no doubt that the salmo-
ferox is superior, both in strength and spirit, to the
salmo-salar."

In America there are several kinds of herring, only
one of which takes the fly, and Mr. Colquhoun notes
of the Scottish that,—

"Various sizes of herring frequent different lochs.
They are called 'skulls,' and the Loch Fine skull is
so much larger than the others, that five hundred go
to a cran, while seven hundred from Loch Long are
required to make it."

As our author treats of all sorts of fish, flesh, fowl,
and creeping thing, we make no excuse for going
from herrings to anecdotes of owls, by way of natural
history:—

"Ever since the old tower of my ancestors has
been in ruins, a pair of tawny owls have made their
habitation there. When a boy, I never failed to
search out their nest, and sometimes tamed one of
the young, which was pretty sure to be decoyed away
by the parents as soon as it was able to fly. I often
saw both father and mother come to their young one
in the duck, sometimes with food in their talons.
These young owls were not at all particular what
they eat, and devoured greedily raw meat of any kind,
as well as fish; but I never saw them drink, and
when offered water, they showed as much dislike to
it as a cat. All day the young owl sat moping, with

* Sam Sly's African Journal; Cape of Good Hope.

closed eyes, hissing and snapping his bill if disturbed; but, about nightfall, his visage became full and staring, and so quick was his sight, that I have only been made aware, by the animation of his solemn face, that the indistinct shadow, barely perceptible, was one of the old ones.

"I have been a good deal puzzled by the observations of an ingenious naturalist, which certainly are in direct opposition to my own. This gentleman resolved to see whether some young white owls, in his barn, could remain without food during the long summer day. He watched them for about twelve hours, and avers that in that time the old birds fed them a hundred and fifty times. For my own part, I never saw the white owl hunting in the day-time, and I know a case in point regarding the tawny owl of quite contrary evidence. A pair had reared their young in a magpie's nest, near the top of a thick pine tree. I used often to go to look at the young, and thus drove the old ones from their dwelling. They were instantly pursued by a host of small birds, principally thrushes and blackbirds; and so surely did this happen, that the noise of their chattering was always a signal to me that the owls' nest was disturbed; whereas, if these owls had hunted for prey in the daylight to anything like the extent above mentioned, the uproar among the little birds would have been almost incessant. A gamekeeper told me that once, when he climbed the tree, one of the old owls darted down upon his head, and scratched him with its claws. I could scarcely give credit to this, as I always saw both birds on the watch when I invaded their castle, but they never attempted any defence."

We can, however, vouch for it, on the testimony of scratches which years have not obliterated, that the tawny owl in a deep hole of an ancient castle wall will defend his domicile à l'outrance, or tooth and nail, as we boys used to call it, and it was not without hands and arms bit, scratched, and bleeding all over, that the captive was dragged from his Golgotha of rabbit and other bones, and pellets of small deer. In the evening, when released, he would fly direct across the river, about a mile, to his castle seat again.

Mr. Colquhoun's chapter on Highland Poachers is graphic and amusing, and his onslaught in goat-shooting is, at least, a novelty in Scotch sports. It is, however, too long for quotation, and we leave it for a specimen of superstition:—

"There is often more earnest in these 'saws' than grown people would be willing to admit. I have known a deerstalker refuse to go out, on a fine morning for the sport, if he saw a mouse on his kitchen floor at early dawn, and was unable to kill it. The same man was confident of success should a cat jump out of a bush before him, when on his way to the hill. He affirms that he never saw either omen fail. This man, from the braes of Athol, is now conducting a flourishing trade in Edinburgh, a clear-headed, capital man of business, and quite as superstitious as when he left the glens many years ago.

"Like most highland poachers, he had two strings to his bow, and followed the lawful calling of a shoemaker to conceal, as much as possible, his depredations on the hills. He told me he had killed thirteen deer before breakfast time. When after grouse, he never wasted powder and shot upon ptarmigan, as they only fetched two shillings a brace then, whereas grouse brought three and sixpence. The ptarmigan were so plentiful in the forest, that he assured me a fair shot might have bagged ten brace in a few hours."

The pike furnishes our next extract:—

"The two following instances of the pike's voracity are almost incredible, but both I can also certify. In the spring of 1841, two pike of twelve pounds weight were cast upon Loch Vennacher shore, each with a hold of the other's jaws, and quite dead. The second instance happened in Suffolk. A jack of only two pounds was found choked in attempting to swallow another of a pound and a half. The gentleman who saw them taken out, only a short time before, told me the fact.

"But even these instances are equalled by the solemn, toothless cod. A friend of mine was trolling

in Loch Long, and hooked a seithe. An enormous cod seized the seithe, and paid the penalty by being brought into the boat himself. His girth seemed unnaturally large, and, upon opening him, a brown paper packet of sandwiches, enough for a luncheon to a pretty large party, was taken out. They could not have been less injured, mustard and all, had the cod's stomach been a sandwich box."

We add two or three other various notices in conclusion:—

"The ears of the otter, buried in its fur, like those of most water animals, give it something of a reptile appearance. But short ears are not always the characteristic of creatures that feed in and about water. There is an aquatic mouse, about the size and colour of a half-grown Norway rat, which has very large round transparent ears. I have often met with it when fishing the more sluggish waters of the lowlands. It is fully as expert a diver as the common water rat. When angling a shallow, gravelly channel of the Ale, in Selkirkshire, I saw one dive a distance of at least a dozen yards, and watched it swimming most expertly under water all the time. From its light fawn colour, it is far easier seen than the water rat. Its legs are also longer, and its motions more light and springy. I have never observed it in any part of the highlands.

"The common *Mus aquaticus* is an ugly creature, and his disgusting look is increased by the apparent deficiency of ears. I remember three being taken alive, by a water dog on the Thames, of a rich cream colour. They all haunted the same bend of the river, and were constantly noticed gamboling among the reeds before they were captured. I never saw more savage little creatures; they seemed to surpass even an imprisoned weasel in ferocity.

"I have often noticed that loathsome creatures prey upon loathsome food; a favourite morsel of the water rat is a bloated toad, while a nest of earwigs are the choice tit bits of the latter. As many as forty have been taken out of a toad's maw. Sheridan's remark to a poor starved man eating shrimps is equally appropriate here—'You're very like your meat.'"

Instinct.—"Many birds, especially those whose young ones run as soon as hatched, and, being thus dispersed, are more likely to be stumbled on, have various arts to arrest the attention of the chance wanderer, and decoy him from the brood. The lapwing is always most clamorous when you are furthest from the objects of her solicitude. So is the curlew; but should you approach them, the mother appears quite careless and unconcerned. Grouse and partridges flutter along the ground as if wounded and unable to fly, the latter uttering a most discordant scream. I have always thought these birds overdo their part, and that the lapwing is far superior to them in the art of misleading. The manoeuvres of wild ducks are similar to those of grouse, and they give notice to the ducklings when they are to dive by a loud quack, which is instantly obeyed. But the most finished actress I have seen was a mire snipe, which fluttered up exactly as if the tip of its wing was broken. It flew in this disabled manner for about ten yards, when it fell as if exhausted, and lay struggling on its side. I walked forward to seize it, muttering, 'Well, if they haven't been poaching even now.' Up it rose again, apparently with the greatest difficulty. But this time it was longer in doing the tumble-down part. Suspecting the trick, I followed to see how it would end. After enticing me some distance, it sprang up with its easy natural motion, and triumphantly twisted out of sight."

"I once witnessed a touching instance of the attachment of an eagle to her young, which, like the child of some blood-thirsty chief, alone had the power to touch the single chord of tenderness and love in the heart of its cruel parent. I had wounded her mortally as she flew from her eyrie, quite unconscious of her having hatched an eaglet. Next day she returned to the foot of the rock, although not able to reach her nest, the feelings of a mother being stronger in her savage breast than either the sense of present pain, or dread of further danger.

"When I lived at Lennie, my children set an old pea-hen, long solitary, with some bantam eggs. Fire came out, and she proved so careful a step-mother as to rear them all. Some knowing observers declared that her long legs would walk them to death. Not so, for often she carried the whole five on her back, and if any one seemed weak or flagging, she invariably took it up for long together, as a good nurse would spare her sickly child. When they were old enough to roost, she decoyed them to the large boughs of some old tree, where they continued to rest even during the long cold nights of our northern winter. She tended them with great care after they were quite able to shift for themselves, always feeding them with any pieces of bread thrown to her. The little bantams showed equal attachment to their kind protectress, and it was not till spring had far advanced that they left her to join the other poultry."

Some of these stories are a *little* marvellous; but we have been much entertained altogether with the very miscellaneous volume.

WELSH LITERATURE.

The Mabinogion. Part VII. By Lady Charlotte Guest. Longmans. Llandovery: Rees.

WITH this Part Lady Charlotte Guest concludes her patriotic literary effort in behalf of her adopted land and language. A task every way more honourable has rarely been undertaken by one of her sex and station. Generated by individual right and good feelings, it generated right and good feelings throughout the country, and created a bond of union among classes not inapt to be warped by jealousies and peculiar dislikes to what they might deem foreign and unsympathizing. The study of the tongue, the research among ancient national records and legends, and the publication of the *Mabinogion*, dispelled all such ideas, and by flattering the *amour propre* of a sensitive race, contributed much to that social condition which it must ever be the wish of every wise man to see cultivated to the uttermost in every British bosom, whether descended of Cwmyr, Celt, Gael, Piet, Roman, Belge, Saxon, Dane, Norman, Dutch, French, or other cross.

Highly commending Lady Charlotte Guest, therefore, for this labour of love, we have merely to state that the Part contains translations from the Welsh (together with the Welsh texts) of the "Dream of Maxen Wledig (the Emperor Maximus, or, it may be, as Nennius has it, Maximianus); the story of "Lludd and Llewelys" (the founder of London, and his brother a King of France); and the famous biography of the King of the Bards, "Taliesin." These are very curious, and curious is their connexion with the earliest Troubadour and Trouvere literature and mediæval romance. Lady Charlotte informs us,—

"Before commencing these labours, I was aware, generally, that there existed a connexion between the Welsh *Mabinogion* and the Romance of the Continent; but as I advanced, I became better acquainted with the closeness and extent of that connexion, its history, and the proofs by which it is supported.

"At the same time, indeed, I became aware, and still strongly feel, that it is one thing to collect facts, and quite another to classify and draw from them their legitimate conclusions; and though I am loath that what has been collected with some pains, should be entirely thrown away, it is unwillingly, and with diffidence that I trespass beyond the acknowledged province of a translator.

"In the twelfth and thirteenth centuries there arose into general notoriety in Europe, a body of 'Romance,' which in various forms retained its popularity till the Reformation. In it the plot, the incidents, the characters, were almost wholly those of Chivalry, that bond which united the warriors of France, Spain, and Italy, with those of pure Teutonic descent, and embraced more or less firmly all the nations of Europe, excepting only the Slavonic races, not yet risen to power, and the Celts who had fallen from it. It is not difficult to account for this latter omission. The Celts, driven from the plains into the

mountains and islands, preserved their liberty, and hated their oppressors with fierce, and not causeless hatred. A proud and free people, isolated both in country and language, were not likely to adopt customs which implied brotherhood with their foes.

"Such being the case, it is remarkable that when the chief romances are examined, the name of many of the heroes and their scenes of action are found to be Celtic, and those of persons and places famous in the traditions of Wales and Brittany. Of this the romances of Ywaine and Gawaine, Sir Percival de Galles, Eric and Enide, Mort d'Arthur, Sir Lancelot, Sir Tristrem, the Graal, &c., may be cited as examples. In some cases, a tendency to triads, and other matters of internal evidence, point in the same direction.

"It may seem difficult to account for this. Although the ancient dominion of the Celts over Europe is not without enduring evidence in the names of the mountains and streams, the great features of a country, yet the loss of their prior language by the great mass of the Celtic nations in southern Europe, (if, indeed, their successors in territory be at all of their blood,) prevents us from clearly seeing, and makes us wonder, how stories, originally embodied in the Celtic dialects of Great Britain and France, could so influence the literature of nations to whom the Celtic languages were utterly unknown. Whence, then, came these internal marks, and these proper names of persons and places, the features of a story usually of earliest date and least likely to change?

"These romances were found in England, France, Germany, Norway, Sweden, and even Iceland, as early as the beginning of the thirteenth and end of the twelfth century. The Germans, who propagated them through the nations of the North, derived them certainly from France. Robert Wace published his Anglo-Norman Romance of the Brut d'Angleterre about 1155. Sir Tristrem was written in French prose in 1170; and The Chevalier au Lion, Chevalier De L'Epee, and Sir Lancelot du Lac, in metrical French, by Chrestien de Troyes, before 1200.

"From these facts it is to be argued that the further back these romances are traced, the more clearly does it appear that they spread over the Continent from the North-west of France. The older versions, it may be remarked, are far more simple than the later corruptions. In them the adventures attributed to the heroes are less marvellous, there is less allusion to the habits and usages of Chivalry, and the Welsh names and elements stand out in stronger relief."

Layamon the Saxon, and Gaimar the Anglo-Norman, who lived in the reign of Stephen, and others, also furnish data upon the origin of Welsh and Armeric fiction, and its crossing the Celtic border to be the foundation of more ornate lays, and the writer observes:—

"The more strictly Romantic Literature of Wales, has been less fortunate, though not less deserving of critical attention. Small portions only of it have hitherto appeared in print, the remainder being still hidden in the obscurity of ancient Manuscripts; of these the chief is supposed to be the Red Book of Hergest, now in the Library of Jesus College, Oxford, and of the fourteenth century. This contains, besides poems, the prose romances known as Mabinogion. The Black Book of Caermarthen, preserved at Hengwrt, and considered not to be of later date than the twelfth century, is said to contain poems only.

"The Mabinogion, however, though thus early recorded in the Welsh tongue, are in their existing form by no means wholly Welsh. They are of two tolerably distinct classes. Of these, the older contains few allusions to Norman customs, manners, arts, arms, and luxuries. The other, and less ancient, are full of such allusions, and of ecclesiastical terms. Both classes, no doubt, are equally of Welsh root, but the former are not more overlaid or corrupted than might have been expected from the communication that so early took place between the Normans and the Welsh; whereas the latter probably migrated from Wales, and were brought back and re-translated

after an absence of centuries, with a load of Norman additions."

The great antiquity of many of the Mabinogion is supported by the argument, that throughout the country "Saxon names of places are very frequently definitions of the nature of the locality to which they are attached;" but whatever their age, the public are deeply indebted to Lady Charlotte Guest for the valuable gift she has bestowed upon the literature of England.

Palenque: a Poem. By Charles Lamb, Esq.

Saunders and Otley.

A COMPOSITION whose subject are the ancient cities of Central America. It is in heroic verse; but does not rise above the sad level which leaves us little to admire but the novelty of subject.

ORIGINAL CORRESPONDENCE.

HOBE CELTICE.—NO. X.

To the Editor of the Literary Gazette.

SIR,—Although some of the most eminent philologists have considered the Indo-Germanic and Semitic dialects as wholly unconnected, a contrary opinion has of late been gradually gaining ground, and, if we may venture a conjecture on such a subject, will be ultimately found to be the true one. On a previous occasion we suggested some instances of coincidences between words of two branches of these great families of language; and we showed that by a mere dialectic peculiarity alone did several Hebrew words differ from their Celtic representatives. It has been observed by philologists that the letter L, when it commences a word, is liable to be modified by either a labial, guttural, or sibilant prefix; and this remark may be extended to all the liquids, but particularly to R, as well as L, and if it be also observed that the guttural prefix is liable to be exchanged for the letter D, we may by the application of these canons trace several interesting coincidences between Hebrew and Celtic.

An example of the manner in which an initial liquid is modified by a prefix is afforded in the Latin word *ros*, dew, which in Greek becomes *ῥοσος*, though philologists are not agreed as to whether the simple or the compound initial is the older. Another example is afforded by the Latin word for law—viz., *lex*, or, in the inflection, *lege*, and which in Celtic appears modified with a prefix, as *dhíge*, a law or ordinance. This word affords a very beautiful illustration of a remark made by Buttmann in his "Lexilogus," (page 378,) that where there is a compound initial, consisting of two consonants, each of the component letters may become the initial of a word substituted for the original form—thus, for example, supposing the Celtic form *dhíge* to have been the original, by dropping the first of the complex initial we obtain the Latin *lege*, whilst, by retaining the first and dropping the second, we get *híge*, which seems the origin of the Greek word *ῥος*, which denotes law as well as justice. Strange to say, the Hebrews appear to have dropped the liquid, and to have substituted a sibilant as a prefix, making the form *צק*, which in Greek letters would be *ζίκ*, the pointing, as in so many instances, having only tended to conceal so obvious a connexion.

The reader will now, I hope, be prepared to carry this principle to other Hebrew words, and will not be startled at any unlooked-for results arising from its application; for example, he must not be incredulous if we try and show him that the *seer* of the Hebrews and the *Druid* of the Celts were known by words which were originally identical. The Hebrew term to denote a seer is a very old one; for we read in the First Book of Samuel (9th chap. and 9th verse), "He that is now called a prophet, was beforetime called a seer;" and this word is *נביא*, which is derived from the verb *naah*, to see, (the Arabic equivalent of which ends with *yod* instead of *he*), and under which head we also find *נר*, *רוי*, a vision; the words used to denote vision and seer are consequently to be considered radically the same, and no scholar will for a moment question the fact, and I merely mention it because the *form* of the one approaches rather more nearly than the other to the

Celtic term for Druid, and which is *druid*, *druid*, and which is connected with *נביא*, just as the Latin *ros* and Greek *ῥοσος* are connected, merely by a dialectic prefix, or a euphonic omission of one.

In the same manner we may find for *Rachel*, the name of Jacob's favourite wife, a more appropriate meaning than that usually assigned to it. The common derivation of the name is from *רַחֵל*, a ewe, forsooth, because she kept her father's sheep! but in Celtic we find that her name would have the liquid preceded by the substitute for a guttural, as if it were *drachal*, lovely-faced, or *drachal*, lovely, and this accords with the description given of her in Holy Scripture—namely, that she "was beautiful and well favoured."

By the same substitution the name of Jacob's eldest son appears in a Celtic form to have a more probable origin than the derivation given in Lexicons, as if he were called *Reuben* from two Hebrew words signifying "behold a son." In Celtic, however, we find that *drubean*, the diminutive of *drub*, signifies, somewhat foolish, a simpleton, and the story of the patriarch gives us no reason to doubt the appropriateness of the appellation. His father's words are, "unstable as water, thou shalt not excel," and his brethren seem not to have trusted him with the secret of Joseph's being sold to the Ishmaelites.

I should be sorry to make the same substitution with regard to another word beginning with a liquid. I mean the name of the interesting and affectionate Moabitess, who shared the fortunes of her afflicted mother-in-law, instead of returning to her own country and her Gods. For, if we prefix the letter *d* to the name of *Ruth*, and trace her name to a Celtic origin, we would be obliged to cast a slur either upon her good sense or her fair fame, as *druth* signifies either foolish or wanton; neither of which appellations seems at all appropriate to the kind-hearted and industrious gleaner in the field of Boaz. But if we recollect that the liquid may be modified by either a guttural, labial, or sibilant prefix, we may find under these conditions a more honourable designation for her. According to Gesenius, her name is contracted from *רחו"ל*, appearance, as if one of good appearance; and a Celtic etymology for her name would give a similar sense, as in Irish, *druth* signifies form, shape, or countenance, and so the name *Ruth* would be equivalent to the Latin *formosa*, comely or well-shaped.

If this be the correct derivation, we have in this case an instance of a guttural preceding the liquid; and I shall proceed to give another, remarking, however, that the liquid *l* is more frequently preceded by *c* or *g*, than is the liquid *r*; whilst the latter is much more frequently preceded by *d* than is the former.

We find mention made in Scripture of a false deity called *Rimmon*, but the interpretation of his name has not been satisfactory. Naaman, the Syrian, asks to be excused for bowing when he accompanies his master to worship in the house of Rimmon, and that is all we know of this object of worship. Rimmon in Hebrew signifies a pomegranate, but this is a very unsuitable name for the idol of a warlike nation. Gesenius conjectures the word might mean high, from the root *raman*, to be high; from Celtic, however, we might get more than one explanation of the name, which would seem more suitable to the object of idolatrous worship; but unfortunately, having no collateral confirmation, any interpretation we adopt must be at best conjectural. I would suggest, then, that the name denoted *Mars*, or the deity presiding over war, and that *רמון*, is equivalent to *רמון-מבטח*, that is, "presiding over war."

The word for war is *חַמָּה*, though *drubean* also signifies contention, and *drubean* warfare; and from this it would seem that the initial letter was not radical, but might be either *b* or *g*. We find the name Rimmon applied to several places mentioned in Scripture, and in such application I think it is derived from a different combination from that suggested for it as the title of the God of war—namely, from *רמון*, the back of a hill, as if denoting the situation of the towns bearing that name; and, further, I would suggest a third combination for Rimmon, as

denoting a pomegranate. The common Irish word to express that fruit is *grain-apple*, literally, the grain-apple, exactly equivalent to pomegranate, — i. e., pomum granatum; but it is possible that instead of calling this fruit the grain-apple, the Syrians may have called it the grain-grape, from the quantity of seeds it contains; and if this conjecture be correct, the name was originally *grain-grape*, which was in pronunciation euphonized into *grain-apple*, and finally into *Rimmon*. If any objection be made to giving three different derivations for words apparently the same, I must defend myself by the authority of the author of *Erubin*, who takes Parkhurst sadly to task for the contrary course—for considering all words outwardly the same to be derived from the same root. A Hebrew term for ostriches is *renanim*, a poetic expression for the birds of the desert. The singular form would be *רנן*, and it may be derived from the Celtic *renan*, speed, this bird being remarkable for the speed with which it runs, and *renan-ean* would signify the fleet-bird, which seems as appropriate a title for it as the Stridulone, suggested as the meaning of its name in Hebrew.

Rom in Hebrew signifies elevation, and in Celtic *rom* signifies the ridge of a hill, as, also, the back of anything. From the former meaning came its application to several hills and hilly places, and, amongst others, to the illustrious city of the seven hills,—even *Rome* itself. The inflection of *rom* is *romas*, and so it agrees with *Roma*, the name of the great city, unless a compound form be preferred, as if it were *rom-as*, the hill of good fortune, that hill where *Romulus* saw his auspicious omen. From the other meaning of this word,—that is, the back, came the word *dromedary*, in allusion to the hunch on its back. This word is ordinarily derived from the Greek *δρομος*, cursus, as if in allusion to its speed; but the Irish name for the animal is *romas*, and *romas* has the same signification as *rom*. Moreover, the word *camel* admits of an analogous interpretation, for in Celtic *meall* signifies a hump, and *cam*, crooked, and both combined denote the crooked, hump-backed animal, which is very characteristic of the animal in question. The Welsh term for a camel means the giant horse; and we may here observe that the Russian name for this useful quadruped may be resolved into components which would lead us to suppose it signified the horse's brother. The Slavonic term is *verbloud*, in which it appears to me that the liquid *l* is substituted for the liquid *r*, and that the original word was *verbrud*, the first term being the same as the German *pfred*, a horse, and the latter signifying brother. In Welsh, *brued* has that meaning.

But to return to Hebrew, and its connexion with Celtic:—in tracing that connexion we have on this occasion confined ourselves to words beginning with the letter *Resh*, but many other most interesting coincidences might be traced in words beginning with other letters, particularly in those beginning with *Lamed*. Some of those we have already shown on a former occasion; for example, the Hebrew *lakad*, to take, has been compared to the Irish *glacadh*, to take; the Hebrew *lot*, a veil or covering, to the Irish *glot*, meaning the same thing; and so of others. We may now observe that the Hebrew *leb*, a heart, is represented in Persian by *قلب*, Klb, where the liquid is preceded by a guttural or its kindred letter; and this connects the Semitic with the Celtic, for independently of the close connexion that has been supposed to exist between the Celts and Persians, we find in Celtic *clab*, the breast or the chest of a man, and which word is evidently cognate with the Persian term for the heart, i. e., that which is contained within the chest.

I shall conclude for the present by suggesting an etymology for the word *leviathan*, the name of an animal frequently alluded to in Scripture, and which, I conceive, means simply "a sea lion," the first part of the compound being a corrupt writing of the Hebrew term, *לביא*, *levia*, a lion, and the latter part being of the same root with the Celtic *clab*, water.

ALEPH.

ARTS AND SCIENCES.

BRITISH ASSOCIATION—BIRMINGHAM.
(Continued.)

FRIDAY.

SECTION A.—(Mathematical and Physical Science.)

1. Inglis (Sir R. H.), on an atmospheric phenomenon seen in Switzerland.
2. Malcolm (Admiral Sir C.), on an extraordinary state of the weather in India during the latter half of February last.
3. Blunt (Mr.), a model of part of the moon's surface, presented and described by Sir D. Brewster.
4. Brewster (Sir David), account of a new stereoscope.
5. ——— description of a binocular camera.
6. ——— on a new form of lenses, and their application to the construction of two telescopes or microscopes of equal optical power.
7. Stokes (Mr. G. G.), on a mode of measuring the astigmatism of a defective eye.
8. Powell (Rev. Prof.), on a new equatorial mounting for telescopes.
9. ——— on De Vico's comet.
10. Rawson (Mr. R.), on the oscillations of floating bodies.
11. ——— remarks on elliptic integration.
12. Hopkins (Mr. T.), on the mirage.
13. ——— on the quantity of vapour in a vertical column of the atmosphere.

1. Sir R. Inglis, on the 8th August last, at three P.M., there being no wind at the time, saw what was quite new to him, thousands and thousands of white motes whirling and floating about, and disappearing at an elevation of about twenty feet. He was at the time on the N.E. frontier of Switzerland, 3100 feet above the sea. Sir J. Herschel, in a letter to him, described analogous facts. In 1821, he saw objects having all the appearance of stars sailing slowly through the field of the telescope. They were said to be thistle-down, but he did not think so. Again, recently, he had seen what at first seemed to be strange-looking birds flying, then irregular whirling masses, some of considerable size, convex downwards and tailing upwards. The telescope disclosed them to be very numerous masses of hay. There was, doubtless, wind on the spot, but none where he was, about three-quarters of a mile distant. Sir J. Herschel asked whether Sir R. Inglis' phenomena were winged ants. Sir Robert answered no, as no one with him saw any fall to the ground.

Col. Sabine described what Humboldt had seen in South America on a mountain 8000 feet above the sea. First the appearance of a flight of birds, then like motes collecting together, then spreading out again. They were found on examination to be blades of grass from the plain below.

Dr. Robinson mentioned another fact, to direct to it the attention of anemometrical observers. The air was still and no cloud visible. Many long muslin webs were spread on the grass to bleach. They were suddenly raised up in cones, one darted up spirally, and then horizontally, passing to a distance of 12 to 1300 yards, where it was deposited on a ploughed field, the radiation there being greater and the surface cooler. The point for attention was that the wind was not uniform, not a general movement of the atmosphere, but filaments of unequal velocities; unless, therefore, a large portion of the air was measured, the truth would not be obtained. He had verified this with gunpowder, and to his surprise, the puffs went in all possible directions, although it was blowing half a gale of wind. A current of air he considered to be a bundle of moving filaments, and it appeared to him that special attention ought to be given to it.

Prof. Chevalier mentioned that on Friday last, with his telescope, he had observed objects passing the field of view, and he was certain they were floating flying-seeds.

Dr. Robinson added that the reflection of the sun's image from the wings of rooks was often seen in the telescope.

Mr. T. Hopkins thought it was incorrectly assumed that the atmospheric disturbing cause was the surface of the earth; he placed it in the region of cloud-formation, and considered it chiefly due to the aqueous vapour constituent.

2. This communication of Sir C. Malcolm's was a long extract from the *Bombay Times*, accompanied by a letter to Prof. Phillips, pointing out the prevalence of similar great heats and thermometrical

phenomena in England in February and March last, and from data since obtained, the fact of the atmospheric disturbance of March, 1840, was the greatest instance on record of so great a general disturbance.

3. Sir David Brewster, for Mr. Blunt, exhibited a beautiful little model of the lunar mountain known as *Erostosthenes*, presenting a long line of minute volcanic cups, and a state of things similar, as Dr. Robinson observed, to the volcanic phenomena of *Kierowa*, in the *Sandwich Islands*.

4. The igneous stereoscope, invented by Professor Wheatstone, for representing solid figures by the union of dissimilar plane pictures, is described in his very interesting paper "On some remarkable and hitherto unobserved Phenomena of Binocular Vision;" and in a paper published in a recent volume of the *Edinburgh Transactions*, Sir David Brewster has investigated the cause of the perception of objects in relief, by the coalescence of dissimilar pictures. Having had occasion to make numerous experiments on this subject, he was led to construct the stereoscope in several new forms, which, while they possess new and important properties, have the additional advantages of cheapness and portability. The first and the most generally useful of these forms is the *Lenticular Stereoscope*. This instrument consists of two semilenses placed at such a distance that each eye views the picture or drawing opposite to it through the margin of the semilens, or through parts of it equidistant from the margin. The distance of the portions of the lens through which we look, must be equal to the distance of the centres of the pupils, which is, at an average, $2\frac{1}{2}$ inches. The semilenses should be placed in a frame, so that their distance may be adjusted to different eyes. When we thus view two dissimilar drawings of a solid object, as it is seen by each eye separately, we are actually looking through two prisms, which produce a second image of each drawing, and when these second images unite, or coalesce, we see the solid object which they represent. But in order that the two images may coalesce, without any effort or strain on the part of the eye, it is necessary that the distance of similar parts of the two drawings be equal to twice the separation produced by the prism. For this purpose, measure the distance at which the semilenses give the most distinct view of the drawings, and having ascertained, by using one eye, the amount of the refraction produced at that distance, or the quantity by which the image of one of the drawings is displaced, place the drawings at a distance equal to twice that quantity,—that is, place the drawings so that the average distance of similar parts in each is equal to twice that quantity. If this is not correctly done, the eye of the observer will correct the error, by making the images coalesce, without being sensible that it is making any such effort. When the dissimilar drawings are thus united, the solid will appear standing, as it were, in relief, between the two plane representations of it. In looking through this stereoscope, the observer may probably be perplexed by the vision of *only the two dissimilar drawings*. This effect is produced by the strong tendency of the eyes to unite two similar, or even dissimilar, drawings. No sooner do the refracted images emerge from their respective drawings, than the eyes, in virtue of this tendency, force them back into union; and though this is done by the convergency of the optic axes to a point nearer the eye than the drawings, yet the observer is scarcely conscious of the muscular exertion by which this is effected. This effect, when it does occur, may be counteracted by drawing back the eyes from the lenses, and shutting them before they again view the drawings. While the semilenses thus double the drawings and enable us to unite two of the images, they at the same time magnify them,—an advantage of a very peculiar kind, when we wish to give a great apparent magnitude to drawings on a small scale, taken photographically with the camera. The lenticular stereoscope may be made of any size. Sir David Brewster then described how may be seen at the same time a *raised* and a *hollow* cone, the former being produced by the union of the first with the second, and the latter by the union of the second

with the *third* figures. This method of exhibiting at the same time the raised and the hollow solid, enables us, he said, to give an ocular and experimental proof of the usual explanation of the cause of the large size of the horizontal moon, of her small size when in the meridian at a considerable altitude, and her intermediate apparent magnitude at an intermediate altitude. As the summit of the raised cone appears to be nearest the eye of the observer, the summit of the hollow cone farthest off, and that of the flat drawing on each side at an intermediate distance, these distances will represent the apparent distance of the moon in the zenith of the elliptical celestial vault, in the horizon, and at an altitude of 45° . The circular summits thus seen are in reality exactly of the same size, and at the same distance from the eye, and are, therefore, precisely in the same circumstances as the moon in the three positions already mentioned. If we now contemplate them in the stereoscope, we shall see the circular summit of the hollow cone the *largest*, like the *horizontal* moon, because it seems at the *greatest* distance from the eye; the circular summit of the *raised* cone the *smallest*, because it appears at the *least* distance, like the *zenith* moon; and the circular summit of the cones on each of an *intermediate* size, like the moon at an altitude of 45° , because their distance from the eye is intermediate. No change is produced in the apparent magnitude of these circles by making one or more of them less bright than the rest, and hence we see the incorrectness of the explanation of the size of the horizontal moon, as given by Dr. Berkeley. When the observer fails to see the object in relief from the cause already mentioned, but sees only the *two* drawings, if there are *two*, or the *three* drawings, if there are *three*, the plane of the drawings appears *deeply hollow*; and, what is very remarkable, if we look with the eccentric lenses at a flat table from above, it also appears *deeply hollow*, and if we touch it with the palm of our hand, it is *felt as hollow*, while we are looking at it, but the sensation of hollowness disappears upon shutting our eyes. The sense of sight, therefore, instead of being the pupil of the sense of touch, as Berkeley and others have believed, is, in this as in other cases, its teacher and its guide. Sir D. Brewster's simplified stereoscopes may not only be rendered portable, but may be constructed out of materials which every person possesses, and without the aid of an optician.

5. For this communication, see under Fine Arts, page 707.

7. Mr. Stokes exhibited and described the mode of making a cylindrical lens of varying power.

8. Professor Powell's equatorial mounting was intended solely for the personal convenience of amateurs. The discomfort of shifting about in all attitudes, he thought, might be obviated by a reclining chair and a different mode of mounting, which a diagram and a model illustrated.

9. It appeared to Professor Powell a singular thing that he had not yet seen any published account of the expected return of De Vico's comet, which is to come in its perihelion in February, 1850. It may be seen in November, or even next month. He gave a rough graphic projection of its orbit. It is a comet, he said, of a short period, of peculiar interest, and considered a member of our system. Its last perihelion was the 2nd September, 1844, and the orbit assigned to it gave the period 5 years and 168 days. Consequently, it would return to perihelion, if orbit right, on the 16th February next. The orbit exhibited no great eccentricity; indeed, it was almost planetary. The diagram represented the earth's orbit and the position of the comet in the several months. Professor Powell positively pronounced that, since 1844, it has not met with any disturbance from Jupiter, but it was difficult to hazard whether, or not, it had been influenced by the asteroids. Its place will be in November, two hours behind the sun, and in the same month, if seen at all, it will probably be observed. One cause of invisibility may be its distance from the earth. In 1844, it was described as a small, faint object. It would now be eleven

times farther from the earth, and, therefore, possessing power the eleventh part of almost nothing.

10. 11, were important experimental investigations of mathematical formulæ, acknowledged as such by Mr. Adams, in the chair; and, 12, presented new and interesting results also admitted by him. Mr. Rawson explained the principle by which he measured the oscillations of floating bodies, and exhibited the model of the instrument for verifying the formulæ. His communications, however, were in a great measure lost to the section, as they were accompanied by a low conversational discussion between the president, Mr. Stokes, and the author.

13. Mr. Hopkins stated that he had observed the peculiar appearance called mirage on the sea coast of Lancashire, at Crosby and Southport, and saw reason to believe that it arose from the vapour that was evaporated from the wet sand of the shore, and he visited those places in order to ascertain the fact, taking with him a thermometer, and a hygrometer, consisting of a dry bulb and a wet bulb thermometer. For some days, however, after reaching Southport, in the beginning of July, no mirage appeared, the weather being cloudy and threatening rain. But the temperature and moisture of the air over the wet sand of the shore, and also over the dry sand hills adjoining, were ascertained, as well as of the wet and dry sands themselves. The following were the means of numerous observations:—

On dry sand.	Dry bulb thermometer.	Wet bulb.	Difference of the two latter.
78°·7	72°·5	63°·3	9°·2
On wet sand.	Dry bulb.	Wet bulb.	Difference.
74°·1	72°·1	62°·4	9°·7

The dry sand was warmer than the wet sand only $4\cdot6$, and the air was rather cooler than the ground, both dry and wet, but the wet bulbs were below the dry ones respectively, $9\cdot2$ and $9\cdot7$, showing that evaporation was active in the air a little above the ground, where the wet and dry bulb thermometers had been suspended. Thick clouds existed, and a little afterwards it rained; during this state of the weather no mirage appeared. A short time afterwards mirage did appear, a little to the north of Southport, at about eleven o'clock in the morning. The day was fine, the sun shining brightly and the sky clear. The states of the sands and the air were now again ascertained, and the following were the results of many observations:—

On dry sand.	On wet sand.	Dry bulb in air.	Wet bulb in air.	Difference between the two last.
87°	78°·1	65°·5	63°·6	1°·9

There was no wind during either of these periods, and it appeared strange that the air should be so dry, as shown by the great evaporation from the wet bulb thermometer, just before rain, when the sky was covered with thick clouds; and so damp afterwards, when the sun shone brightly and the weather appeared dry and clear. Accompanying this dampness, however, appeared the mirage, and particularly over the part where the sand was damp. Mr. Hopkins pointed out that the clear bright sun, when it appeared, raised the temperature of the dry sand to 87° , and of the moist sand to $78^\circ\cdot1$, leaving $8\cdot9$ of heat, the difference between the temperatures of the two sands, to convert a part of the water that was in the sand into vapour. The vapour thus formed passed into the air and saturated it, making the temperature of the wet bulb thermometer the same as that of the dry one in one instance, and nearly the same in others; giving a mean of only $1\cdot9$ of difference between the wet bulb and the dry bulb thermometers, a very damp state of the air. And the wet bulb thermometer, by its feeble evaporation, showed that the stratum of air immediately over the ground where the mirage had been seen was saturated with vapour. Thus, when the sky was cloudy and no sun heated the sand, but little vapour was raised from the sand, and no mirage appeared; but when the sun exerted great power on the sand, and raised so much vapour from it as nearly to saturate the air, as indicated by the

wet bulb thermometer, the mirage appeared. The mirage was of a blue colour, varying in intensity, and appearing the strongest in colour when the air was the most saturated with vapour. Objects beyond it were clearly reflected from its surface, as if from water, the mirage therefore was not produced by refraction. At one time, a little after noon, when the sun had greatly heated the whole surface of the ground, objects were reflected from the blue mirage, and other objects a little farther from the sea, and nearer the dry shore, were reflected from what appeared a colourless body of water. The objects that were above and beyond this apparent water were inverted just as in the blue mirage, but were not so palpable to the sight. The colourless mirage seemed to occupy a higher level than the blue, and extended more inland. It suggested the idea that it might be the effect of the smaller portion of vapour that was rising from the dry sand hills, whilst the larger quantity furnished by the heated moist sand formed the blue mirage. But in addition to these reflections from the surfaces of the blue and colourless mirage, there was refraction of the rays of light, which passed from the place where the mirage appeared to the eye of a spectator placed at a distance say of about a mile from it, and objects in the intervening space were disturbed as is usual by refraction. This refraction, which often appears on the shore without mirage, but which also sometimes accompanies it, has been supposed to be the cause of it. But Mr. Hopkins considered that the facts collected by him were sufficient evidence that the appearance called mirage is produced by a stratum of aqueous vapour near the surface of flat ground, such as the sea-shore, reflecting the rays of light just as water reflects them.

Sir D. Brewster considered the blue colour of the mirage to be very singular, and he did not think that it had ever been before seen.

14. Mr. Hopkins pointed out that the present mode of computing the quantity of vapour in the atmosphere is by ascertaining the dew-point or point of condensation of the vapour. And he showed that this would correctly determine the quantity in the whole vertical column, in an atmosphere of pure vapour alone, as in such an atmosphere the incumbent pressure of the upper portion would determine the density and tension of the lower part, and thus furnish the means of ascertaining the nature and amount of the column from the effect of its pressure. In our mixed atmosphere the gases, he said, cool by the expansion consequent on the removal of incumbent pressure much more rapidly than vapour does. The gases cool one degree if subjected to the diminished pressure found at a height in the atmosphere of 100 yards, whereas the vapour would not be cooled from the same cause one degree, until it reached the height of 500 yards. A consequence of these two different laws of cooling of the gases and of the vapour, is, that the vapour is not able to ascend and fill the atmospheric space to the extent that it would in the absence of the gases, but is condensed by them at an inferior height; and thus the higher regions do not contain the quantity of vapour indicated by the dew-point near the surface of the earth. He exhibited tables showing the respective laws of cooling of the gases and of the aqueous vapour to the height of 4000 yards, together with the quantity of vapour that would exist in an atmosphere of vapour alone, and which is at present actually but erroneously supposed to exist; and the largest quantity that can exist in our mixed atmosphere when it is at rest, in decimal portions of an inch of mercury. When, however, the atmosphere is disturbed by condensation of vapour, the state of things is somewhat altered, as the condensation warms the air in the part, and enables it to mix with a little more vapour than is compatible with the height in an undisturbed state.

SECTION B.—(Chemistry, including its Applications to Agriculture and the Arts.)

1. Claudet (Mr.), researches on the theory of the principal phenomena of photography in the daguerriotype process.
2. Andrews (Dr., F.R.S.), report on the heat of combinations.

3. Bontemps (M.), inquiries on some modifications in the colouring of glass by metallic oxides.

4. Gladstone (Dr.), on the compounds of the halogens with phosphorus.

5. Ebelmen (M. M.), on artificial goms, (with illustrations).

6. Forchhammer (Prof.), on a new method of determining the organic matter in water.

1. The author's points of investigation were the following:—1. What is the action of light on the sensitive coating? 2. How does the mercurial vapour produce the daguerreotype image? 3. Which are the particular rays of light that impart to the chemical surface the affinity for mercury? 4. What is the cause of the difference in achromatic lenses between the visual and photogenic foci? why do they constantly vary? 5. What are the means of measuring the photogenic rays, and of finding the true focus at which they produce the image? Although it was generally supposed that light was producing a negative image, by darkening the iodide of silver, Mr. Claudet has found that, after a sufficiently long exposure, light operates a decomposition of the compound, and that there is a precipitate of the silver set free, which, after the washing by the hyposulphite, has the same appearance as the deposit of mercury. This action, by which the iodide of silver is decomposed, is very slow, and long before it can take place, light imparts to the surface an affinity for the mercurial vapour. This is the cause of the daguerreotype image, but there appears to be no decomposition of the compound, for when light has imparted to the surface the affinity for mercury, the red, orange, or yellow rays can withdraw that affinity, and restore the plate to its former state of sensitiveness. Light produces the affinity for mercury in $\frac{3}{1000}$ th part of the time necessary to operate the decomposition of the compound; and when the decomposition has commenced, the red, orange, and yellow rays, instead of destroying the action, continue it. The decomposition on iodide of silver takes place in $\frac{1}{100}$ th part of the time that it is operated on the bromo-iodide of silver, while the affinity for mercury is imparted on the last in $\frac{1}{100}$ th part of the time necessary to produce it on the iodide of silver. Mr. Claudet stated that he had been able to ascertain all these different data by means of his photophotometer, and in reference to this instrument, he took this opportunity of explaining an important improvement he had added to it. It consists in allowing the light to strike the plate through four series of holes, each receiving an amount of light double of the preceding one, so that in following the geometrical progression, one plate could show the effect of various intensities from 1 to 512, and when adding a second plate with the same arrangement, receiving the same light, from 1 to 8192. In one fall of the plate having the progressional openings through which the light strikes the plate, every series of holes, seven in number, presents the geometrical progression of intensities from 1 to 64; and by means of sliding blades, one series is shut, and in giving a second fall, all the other series receive a double intensity of light, so that the second series begins the geometrical progression from 2, and continues it to 128. In shutting the three series and giving two falls, the progression on that series begins at 4, and goes on to 256, and so on. When the whole of the series have been affected by light in the geometrical progression, all the holes may be half shut by pushing the slides just enough for that purpose, and in that state if the plate is exposed to the radiation of light, through red, orange, or yellow glasses, it is possible to examine and compare the effect of these coloured media on fifty-six different intensities of light in a geometrical progression. It is by this means that M. Claudet has been enabled to ascertain at what degree the decomposition begins, or the affinity for mercury is given; also upon what intensity the red, orange, or yellow rays destroy or continue the action of light. The most practical part of Mr. Claudet's paper referred to the phenomenon of the visual and photogenic foci not coinciding in achromatic lenses; and Mr. Claudet thinks that it is impossible to produce lenses in which the two foci should coincide for all distances from the

object. He described his method of finding at once the true photogenic focus for every distance, by placing several screens, having sharp lines or printed letters, at different distances from the camera. Mr. Claudet has discovered another singular anomaly connected with the question of the difference between the two foci—viz., that that difference is constantly varying. In some lights, for the same distance of the object, the difference is very great, in some others very small, and in other circumstances the two foci coincide; so that in order to obtain a well-defined picture, the photographer is obliged constantly to find out the exact position of the photogenic focus. Mr. Claudet states that he has not yet been able to ascertain the cause of these variations, and he concludes by calling the attention of opticians to that fact.

2. Dr. Andrews detailed experiments on the heat given out by simple bodies, when combining with other simple bodies, by compounds mixed with other compounds, giving rise to double decompositions, and by anhydrous substances passing into the hydrated state.

Prof. Magnus pointed out the importance of noting the physical conditions of the bodies experimented on. For example, did carbon, as diamond, plumbago, &c., act in the same manner?

Dr. Andrews stated that Sillerman's experiments with diamond, plumbago, and wood charcoal, gave different results from those which, taking their specific heat into account, they should have given; but whether the experiments are false, or some important relation exists which occasions the difference observed, has yet to be determined.

3. Abstract of "Inquiries on some Modifications in the Colouring of Glass by Metallic Oxides," by G. Bontemps. A great number of observations made by Mr. G. Bontemps in the colouring of glass, brought him to the conclusion, that chemistry alone could not explain all the varieties of colours produced by metallic oxides; and that they were to be attributed to some physico-chemical phenomena. He observed that these colours were not only the result of the degrees of oxidation of metals, but also of some circumstances of temperature. 1st. *Iron*, as colouring matter of enamel, gives a *purplish red*, or *red orange* colour, if the temperature of the muffle is a little higher. When it is used in glass furnaces it produces from orange to green colours; and, at the highest temperature employed in melting window glass, gives a *blue* colour; so that *all the colours of the spectrum are produced in their natural order by iron*, in proportion as temperature is increased. 2nd. *Manganese*, producing a purple glass, is used also in small proportion as *glass soap*, for clearing glass from greenish tinge, coming from slight portions of iron or carbonaceous matters in the materials: if too much manganese was used the glass takes a light *pink* colour, which, by remaining too long in the melting furnace, or in the annealing kiln, turns first to a light brownish red, then to *yellow*, and afterwards to *green*. Manganese presents also more extraordinary phenomena, on account of its photogenic properties: white glass containing a small proportion of manganese is liable to become yellow or purple, without losing its transparency and polish of surface, under the influence of luminous beams, whilst it remains colourless when kept not exposed to the light. The same glass, exposed for a long time at a temperature sufficiently high to bring a beginning of devitrification, becomes purple outside, whilst the inside parts become white opaque. 3rd. *Copper*, in the state of black oxide, produces a *blue* colour, and in the state of protoxide, or red oxide, gives a red colour, in which the degree of temperature brings many modifications. If the glass fit to be blown is rapidly cooled it becomes of a *greenish yellow*, and by heating again it takes its *orange red* colour; but if the temperature is increased the orange red becomes crimson red, then *purplish red*, takes bluish tints, and gets discoloured. Copper has thus produced *all the colours of the spectrum in proportion as the temperature was increased*. 4th. *Silver* stains glass of a yellow colour, without any addition of flux, by laying on the surface of glass or flint glass a small proportion of oxide or salt of

silver in a great state of division, and firing in a muffle, and, according to the quality of glass, it is liable to be stained from a lemon, or *greenish yellow* colour, to *orange* and *red* by a second firing. If the temperature was too high, the glass takes a pink or purple colour, but in this case the surface becomes greenish opaque. From this tendency to opacity, silver is seldom used in glass furnaces, in which it produces an agitated matter, which being cut at several depths, presents, by combined effects of reflexion and refraction, *all the colours of the spectrum*. 5th. *Gold* presents this phenomenon, that by a first melting, this metal being added in the state of *purple of Cassius* to the mixture, gives a colourless glass, which shows a pink-red colour only by a second fire, in proportion as it is penetrated by heat. M. Bontemps observed also that the yellow colour given by an excess of charcoal in a mixture of silico-alkaline glass may be turned in some circumstances to a dark-red colour by a second fire. All these modifications observed in the colouring of glass cannot be explained by any chemical changes in the materials. Are they not more likely to be attributed to some modifications in the disposition of composing particles? Really, they are generally produced under some circumstances which appear to place the glass into conditions of crystallization. They prove (if it would be necessary) the necessity of associating the physical and chemical sciences in the study of phenomena. Few materials more than glass present so fertile a field of observation. Glass is so easily altered, that a slight pressure on a point of its surface, or the least imperfection of annealing, changes the condition of its refractive properties. This fact has still increased the difficulties of manufacturing optical glass. It is not easy to anneal so completely discs of three or four inches diameter. M. Bontemps states, however, that he has succeeded at Messrs. Chance's glass-works to anneal completely flint-glass discs up to twenty-four inches diameter.

Dr. Faraday concurred with M. Bontemps in regarding the phenomena of coloured glasses not as purely chemical nor purely physical, and believed that it is only by considering them conjointly as physical and chemical that they can be successfully studied.

4. presented an interesting series of combinations of chlorine, iodine, and bromine with phosphorus.

5. The President, Dr. Percy, called attention to specimens of artificial gems produced by M. Ebelmen. Among them were emerald, rose spinel, blue spinel, and sapphire. The method pursued by M. Ebelmen has been already given in the *Literary Gazette*.

6. Dr. Forchhammer described his method of determining the quantity of organic matter in water. In the analyses of water the presence of organic matter is rarely noticed, although almost all waters contain some. The method he resorted to was the addition of hypermanganate of potash to the water, by which the organic matter was oxidised, the hydrogen converted into water, the carbon into carbonic acid. The salt was dissolved, and added in small quantities to the water to be tested, and as long as the red color of the test was destroyed further quantity must be added. When the test is no longer bleached by the water, all the organic matter was oxidised, and the amount may be estimated by the quantity of the test used. He gave an interesting account of analyses made by his method.

SECTION C.—Geology and Physical Geography.

1. Murchison (Sir R. I.), on the distribution of gold on over the surface of the globe, and a comparison between the auriferous products of the Ural Mountains and California.

2. Mallet (Mr. Robert), Report on the statical and dynamical facts observed as the results of earthquakes. Prepared at the request of the Association.

1. [The first paper drew a crowded auditory, but in this, as in other instances, though Sir R. Murchison is a clear speaker, readily heard and easily followed, we lost a good deal of his discourse, in the middle of the room. And we may notice that not only in the two great rooms in the Schools (Sections A. and C.) which were partitioned off, and so interfered with the opposite Sections D. and G. (occupying the other

divisions) as to drive them down stairs after the first hour's trial, but in several other places of meeting the proceedings were seldom distinctly audible. This arose partly from the forms of the apartments; but the loss was much aggravated by the manner of the generality of the speakers, either addressing themselves conversationally to individuals near them, or turning to the President behind them with their backs to the audience, or muttering what they had to say in as low a tone of voice as if they were making themselves their own confidants in secrets not to be divulged to the world. Even sitting within the bar, as it were, it was impossible to gather the import of very many statements and remarks.]

Sir R. Murchison's communication was of a very popular character, and was illustrated by several maps on a large scale, exhibiting the auriferous deposits and the geological formations in juxtaposition with them, in the Ural Mountains, California, and other parts of the earth. Certain descriptions of metamorphic rocks were so invariably connected with the gold veins, that he ventured to call them geological constants; and wherever these occurred gold would be found. The resemblance between the Ural and Californian ridges in their mineralogical structure was pointed out, and it was shown wherever certain rocks of intrusive character, namely, greenstones, porphyries, sienites, granites, and serpentines, had been intruded through palæozoic rocks, or, in short, where clay slates, limestones, and graywacke sandstones had been penetrated by such igneous rocks, that quartz veins abounded, and with them a diffusion of gold ore in grains, leaf, and veins. Sir Roderick was not of opinion that other tracts of California would be found to contain such abundance of the metal as the banks and slopes of the Sacramento and its higher tributaries; and had no fear that from any quarter there would be such an influx of gold as would materially disturb the relative value and commercial intercourse of the world. It was a mistake to believe that the gold was washed down from the mountains; it existed in the drift or alluvium, and all the great masses had been obtained from shingle and superficial rubbish. He mentioned the huge bones of the mastodon, &c. in the North Ural formation, and told that when the Russian miners first saw them, they exclaimed, "Take all the gold, but leave us the bones of our ancestors—the Giants." A *coup d'œil* over the history of golden discoveries and workings formed an attractive portion of this address, and the prospect of many farther discoveries being made was held to be most probable. Remarks of still more immediate interest were made on the mines of Australia, which could not yet be wrought because it could not be ascertained what course Government would take in claiming any proportion of the ore. Professor Sedgwick differed from Sir R. Murchison in his conclusions that gold was more plentiful on the top of veins than in the veins themselves, or that the gold mountains ran in the direction of north and south; and Sir H. De la Beche also offered some opposition to the theory, which Sir Roderick defended with great spirit.

2. Of Mr. Mallet on earthquakes, it is quite impossible to give any competent idea without the accompanying very complex diagrams and illustrations, but the *Athenæum* states the following outline:—

1. Earthquakes occur over all parts of the earth's surface, both on land and under the ocean. 2. At all times, at all seasons, and at all hours of the day and night. 3. There seems no sufficient ground for supposing that they have operated more frequently or with greater intensity during one portion of past time than at any other. 4. Or that one part of the earth's surface has always been more liable to them than another. 5. But those regions which surround the present great centres and lines of volcanic action do appear to be now most subject to earthquakes. 6. And earthquakes are most prevalent and most violent in proportion to the activity and intensity of volcanic action in those regions at given times. 7. Many regions which are not now, nor present any appearance of having been, theatres of volcanic

action, are subject to very frequent earthquakes. 8. Regions of extinct volcanic action do not appear more subject now to earthquakes than others altogether non-volcanic. 9. Although active volcanic regions are not frequently affected by earthquakes, yet the most violent recorded earthquakes appear to have convulsed regions lying some degrees away from the nearest volcanic centre. 10. And in general the most violent earthquakes have occurred upon the sea-coasts, or not far inland; some doubt, however, hangs over this in connexion with very ancient earthquakes in Asia. 11. Earthquake shocks have been felt on the ocean at vast distances from any land; and in some cases they have been nearly vertical in places where the depth was profound, and no phenomena occurred at the surface of the ocean indicative of volcanic action beneath. 12. The earth-wave or shock is a motion of great velocity, and occurring during a short moment of time at any given spot. 13. The total duration of motion at a given spot varies indefinitely, or between limits which have not been ascertained. 14. The absolute area convulsed at one earthquake epoch varies within indeterminate limits, and is related apparently to the maximum force of the shock in its extent. 15. The shock, or earth-wave, is a true undulation of the solid crust of the earth. 16. The undulation, which constitutes the earth-wave, has a real motion of translation. 17. The direction of translation of the earth-wave varies from vertically upwards to nearly horizontally in any azimuth. *a*, Shocks felt at great distances from their origin are nearly horizontal in transit; *b*, Within a certain radius round the origin they are sensibly inclined in transit; *c*, Some of the most destructive have emerged vertically; *d*, The direction of transit often varies during one earthquake; *e*, Two shocks may arrive nearly simultaneously at the same point with different transit directions. 18. The motion of translation of the earth-wave is rectilinear, and not curvilinear. 19. It has in all cases a true wave form upon the surface, and when its direction is nearly horizontal, the crest of the wave advances along a given line and parallel to itself. 20. The earth-wave has determinate dimensions in height and breadth, dependent on the force of the original impulse. 21. The velocity of its transit has not yet been determined by observation or experiment; it is proved, however, to be immense, and dependent on the elasticity and density of the formations through which it passes. 22. The direction and velocity of transit change occasionally in passing from the boundary of one formation to another. 23. Earthquakes occur which are accompanied by various sounds having a subterranean origin, which sounds may either precede, accompany, or succeed—or occur both before, during, and after—the shocks, or some of them; other earthquakes, of the greatest violence, are unaccompanied by any sounds whatever. 24. When the centre of impulse of an earthquake is under the sea, and within a certain (usually a comparatively small) distance of the land—the sea, at about the moment the shock is felt along the shore, retires slightly, and then again rolls in as the great sea-wave of translation, at a certain interval after the shock, depending on the distance of the centre of impulse.

Earthquakes, however great, are incapable of producing any permanent elevation or depression upon the surface of the earth by their direct action. But by their secondary effects they change it in various ways, thus: 1. Vast land-slips take place. 2. New lakes and river-courses are formed and old ones obliterated. 3. New valleys are hollowed out. 4. Fissures of various sizes are formed; in rocks or buildings by direct action; in incoherent or loose materials by subsidence or lateral disturbance, by the action of water. 5. At the moment fissures are formed, fire and smoke (apparently) have been observed to issue. 6. Water often spouts from fissures, wells and springs burst up unexpectedly from the ground at the moment of the shock. 7. The great sea-wave when it comes ashore after the earthquake, produces all the effects of a great deluge.

The report concludes with stating some of the

most important desiderata of earthquake knowledge,—viz. 1, Large determinations of the moduli of elasticity of the substances forming the crust of the earth; 2, systematic and connected observations with self-registering seismometers of the direction and other elements of earthquake shocks; 3, direct experiments as to the rate of transit through the various formations of the earth's crust of the shock when artificially produced, to be measured by the author's seismoscope.

SECTION D.—(Natural History, including Physiology.)

1. Hancock (Mr. A.), notice of the occurrence on the British Coast of a burrowing barnacle; being a type of a new order of the class cirrhipedia.
2. Bate (Mr. C. Spence), notes on the boring of marine animals.
3. Bate (Mr. C. Spence), on the tubicola.
4. Peach (Mr. C. W.), on the luminosity of the sea, with sketches of some of the animals;—some new to the British coasts.
5. Strickland (Mr. H. E.), on additional bones of the long-legged dodo or solitaire, recently brought from Mauritius.
6. Strickland (Mr. H. E.), report of experiments on the vitality of seeds.

1. Mr. Hancock named this type *Alcippe Lampas*, and the order he proposed to call *Cryptosomata*. They abound on our coast, enter the sound shell when quite young, are frequently partly closed up by a thin lining calcareous matter, and differ from other Cirrhipedia in the upper lip, &c., and they suffer in the attempts to remove them from their abode. They were quite visible in a wine-glass to the unassisted eye, and looked like white specks. They destroy the shells of the larger mollusks.

Mr. Darwin had found an allied form, especially in the lip, in South America, where it inhabited cavities of the *Conchlepas Peruviana*, and mentioned another new type in his possession. The mode in which these creatures attach themselves to foreign bodies gave rise to a long conversation, in which Professor Milne Edwards, Professor Allman, Mr. Jefferys, and Dr. Macdonald, took part; but led to no conclusion.

2. The gist of this paper embraced a subject to which we have already alluded in this Report, and which was frequently brought on the tapis not only in the Natural History, but in the Chemical and Geological Sections—namely, the action of Carbonic Acid. In the present instance, Mr. Bate maintained that the "Phenomenon characteristic of a peculiar tribe of acephalous mollusks," "Free carbonic acid mechanically held in sea water," as well as the "Boring of saxicava into lime-stone," depended on this acid; and that it was impossible for any animal to rotate as these did by its own power, without receiving a leverage from any other agency. [Specimens were exhibited]. And the reader went on to state particular and analogical proofs of his theory, stating that the animal had the power of penetrating into rocks, where it continues as long as it enlarges in bulk. The thickness of its shell denotes age. No boring mollusks have ever been found in carboniferous atmospheres. They thrive best in the rough waters of the ocean, but perish in the more quiet waters of the bay. Every oyster is perforated, on account of its sponge like character, but naturalists were divided as to the manner in which the perforation was accomplished. He (Mr. Bate) had discovered as many as fifteen or sixteen of these creatures upon a single oyster shell. They cease to bore when they have the power of locomotion. A long conversation ensued among the leading naturalists present—Prof. Milne Edwards, Mr. Strickland, Mr. Bowerbank, Prof. E. Forbes, Mr. Jefferys, Dr. Macdonald, and Mr. Bate, on the subject of the agency of carbonic acid in increasing the power of perforation, compared with those of attrition, spongosity, and the exchange of material, as silex for carbonate of lime.

3. Mr. Bate then introduced his brief paper on "Tubicola," which was confined to the consideration of the terribella medusa.

4. Among the contributors to these meetings, no one interests us more than the author of this paper. Occupying a humble station on the coast of Cornwall, he has pursued his researches for years with

indefatigable assiduity, and produced stores of useful and practical materials for the consideration of his more learned compeers in the science of natural history; and he also embellishes his communications with a tone of poetry and touch of imagination which prove him to be a true genius of the lowly soil.* He commenced by stating that, although many observations on this interesting subject had been made, the true cause was still unknown, and expressed the delight he had experienced in witnessing and watching the extreme luminosity of the seas, on many occasions during the present summer. He then proceeded to describe some of the animals found, some of which were new to the British seas. He adduced several instances when these appearances were followed by strong gales of wind and tempestuous weather, and hinted that a peculiar electrical state of the air might be the cause of greatly exciting the animals to emit greater light, and that when these storms and lightnings were violent, their destruction followed. There was a long list of observations made at irregular periods, in several successive years, and then gave the following table and list of objects found:—

Luminous.

When the weather has changed suddenly from fine to wet, with gales of wind, lightning, &c.	When it continued fine.
1845	1
1846	1
1847	2
1848	4
1849	3

List of Objects.

Gasteropoda—Young of *Eolis*. *Tunicata*—Tadpole of *Botryllus*. *Cirrhopoda*—Young of Barnacles. *Ecuvia* of *Crustacea*—Opossum shrimp, *Zoea*, *Oniscus ceruleanus*, *Polyphemus*, *Cyclops*, *Cypris*. *Annelida*—A small swimming one. *Zoophyta*—*Laomedea*. *Acalepha*—*Willisia stellata*, *Saphenia dinenia*, *Sarsia prolifera*, *Thaumantias octona*, *Thaumantias inconspicua*, *Bougainvillea nigritella*, *Lizzia blondina*, *Lizzia octopunctata*, *Steenstrupia rubra*, and one new one. *Beroë* and other *Acalepha*-like objects. *Diphyidia*, new to the British coasts, probably *Cuboides vitreus*, and one like *Calpe pentagona*, *Volvox*, and jointed *Alge*.

Professor E. Forbes bore testimony to the unwearying efforts of Mr. Peach, and expressed the pleasure felt by all on meeting him at the Association. One of the animals he had found was new to the English but not to the French coasts; and another, which he supposed to be new, was a medusa in a hydroid state.

5. Mr. Strickland exhibited the bones which completely demonstrated the correctness of his former conclusions; and the Prince of Canino acknowledged himself a convert to the opinion that the dodo was a gigantic pigeon, and not a gallinaceous bird.

Dr. Macdonald suggested the propriety of calling the principal bone (rested on by Mr. Strickland) Tarsus, instead of Tarsus metatarsus.

6. Mr. Strickland then produced his ninth report. Thirty-one species had been experimented on, and germinated at eight years old. Those which did not germinate, (wheat, for instance,) about six or eight.

There was a considerable list, and Dr. Lankester observed that nearly a thousand experiments had been tried.

SUB-SECTION E.—Ethnology.

1. Crawford, (Mr. J., F.R.S.), a list of Oriental words adopted in English.

2. Professor Phillips, notes on tumuli in Yorkshire.

1. After several mistakes in printing the announcement in the papers, this subsection met at last, but from the circumstance stated, with a very slender audience. The first paper was nevertheless of much philological interest, Mr. Crawford adducing a selection of 160 words adopted into English from the Arabic, Persian, Turkish, Hindu, Malay, Chinese, and Polynesian languages. Tracing their modifications

* He had with him a collection of very curious (some of them, perhaps, unique) trilobites, &c., collected along shore nearly all the way to Plymouth; but we do not think they were produced to any Sectional Meeting. Ed. L. G.

to the original tongues showed immense reading and acquisitions; and such derivations as have not yet found place in our dictionaries well deserve the attention of lexicographers.

2. Professor Phillips described one of many tumuli which lay scattered around it, which he had assisted in opening, (such as Mr. Hogg brought forward at the Swansea Meeting,) and called attention especially to the skulls which were brought to the light of day again by these investigations. On these he proposed to base a theory of the affinities of races more certain than could be traced from lingual affinities. He considered them to be true British crania; and that by directing attention to the tumuli existing in various places of Great Britain, a considerable number of crania of British races, and of the Anglo-Saxon era, might be procured, which might be distinguished from those of the Danish, Norman, and other invaders of our soil. He then, with the aid of a rough diagram, showed the position of a considerable number of tumuli in Yorkshire, on a dry elevated tract of chalky land in the West Riding; and gave an account of the one opened by himself and a friend, and the appearances which presented themselves. Near the surface they discovered a heap of burnt human bones, and a curious bone instrument, but at the base of the tumulus the skeleton of a man sitting in an upright position, with an urn placed between its arms and legs. The urn was of the most simple description, being composed of clay rudely ornamented. The skull was, however, apparently a mal-formation.

We believe that something may be done and result from the course suggested by the intelligent Professor, and congratulate archaeologists on finding so clever an inquirer among their ranks.

SECTION F.—Statistics.

1. Finch (Dr. Cuthbert), on the diseases and causes of disability which incapacitate the native soldier for military service in the Indian army.

2. Sykes (Lieutenant-Colonel, F.R.S.), contributions to the statistics of the production of sugar in the British dominions in India.

3. Bunsen (The Chevalier), on the relative amount and extent of the different races in Prussia and in Germany; and on the statistics of Prussia, with particular reference to railways, and the system of public instruction according to the latest returns.

1. A paper of astute medical research, and great intelligence, the particular points of which would be useless in a journal like ours, however deserving of attention (where fully and minutely reported) from the profession and the government of India.

2. Colonel Sykes' communication, compiled from many official returns, involved the questions of slave and free labour production of sugar, and its price in the European market. The native consumption in India was much less than supposed, varying from two pounds and a half to nine pounds a head, and he conceived that the British subjects in India had nothing to fear from the low prices said to be obtained for sugar, and that free labour might compete successfully with the labour of the slave. A conversation ensued in which Colonel Sykes' opinions were generally adopted, by the Bishop of Oxford, Mr. Heywood, Mr. Porter, Mr. J. Sturge, and others, but it was hinted that the owners of sugar plantations must look more closely to their plantations to ensure them commensurate profits, and enable the free to compete with the slave produce in the market.

3. Excited great interest, and occupied the speaker above an hour and a half, during which his Excellency was listened to with most marked attention. The whole address, after the railway statistics, turned on the important subject of education, and the system now existing in Prussia. The following data, picked out from the widely-extended mass, may be considered to be among the most curious of these statements, and to furnish examples on which improvements in Britain may be founded. As to the general elements of the ethnographic character of the German race, of the forty-five millions of population only thirty-six millions spoke the German language, the remainder belonging almost exclusively to the Slavonic race, who made an incursion into the country during the 17th and 18th centuries, and managed to retain a

footing in it, which they still held. In the end of last year there were 2300 miles of railway throughout the whole extent of the German Federation, and two of the lines would be each more than 1100 miles long when they were finished. They were in the hands of twenty-seven companies, and twenty millions of pounds sterling, in round numbers, had been expended. The Prussian Government had guaranteed a revenue of three and a half per cent. on all the lines approved of, but interfered no further, if this amount was realized, as had been the case in every instance, six and seven per cent, having been the dividend received by the shareholders of some lines. The only demand enforced by Government was that each company should maintain a large reserve fund to meet any emergency that might arise. Since the Peace of 1816, when the population of Prussia was about ten millions and a quarter, accurate statistics had been recorded, and the result showed a yearly increase of from three to six per cent. in the population, so that there were now a population of nearly sixteen millions. Berlin, at the time of the Peace, had a population of 150,000; now it was probably 400,000. In 1843 they had about 30,000 more women than men, which was not so high a proportion as England showed at the last census, but this proportion existed in Germany only beyond the seventeenth year, previous to which there were more males than females. As to longevity, there were six per cent. of the population above the age of sixty, and women lived the longest. Marriages took place from the twentieth to the twenty-first year amongst women, and with men they ranged from the twenty-fifth year to the twenty-sixth. There was one birth to every twenty-six of the population, and three per cent. more boys than girls, with an average of four children to each family. In England every sixteenth child was illegitimate, in Prussia every thirteenth, and in Austria every eighth. The increased proportion of females to males in illegitimate children was very striking, amounting to six or seven per cent. The proportion of Protestants to Catholics was as five to three, and of Jews there were about 206,500 in Prussia. The number of conversions to Christianity amongst the latter had increased more than fifty per cent. since the removal of the civil disabilities by which they had been fettered in Germany. There was a church for each eleven or twelve hundred of the population, and a minister for every sixteen hundred. As to education, there were in 1846 three millions of children "liable" to go to school from their sixth to their fifteenth years; that is to say, the parents of these three millions were compelled to pay 18d. a year for the education of each of their children, and the consequence was that comparatively few of these three millions were absent from the schools which Government prepared for them. He did not think there was an instance of the children of even the poorest classes being taken away from school before the completion of their fourteenth year. Government provided upwards of 26,000 schoolmasters, all of whom were compelled to remain for two or three years in a training seminary, and to pass an examination before they were allowed to exercise the vocation of teaching the young. They had forty-two training seminaries in Prussia, of which about one-third were Catholic, and the remainder Protestant, and the character of the spiritual instruction given in the elementary schools was either exclusively Catholic or Protestant, according to the majority of the locality in which the school happened to be. The children in the minority were allowed to absent themselves from school after the usual secular instruction had been given them, but it was imperatively required that they should be instructed on spiritual matters by their clergymen in the same manner as the majority were being instructed in schools. The highest branches of education were also provided, and were within the reach of all, high and low, under certain conditions. Various questions were asked by the Bishop of Oxford, Lord Harrowby, Sir R. Inglis, and others, and in answer the Chevalier gave further explanations, and stated that parents were liable to be punished if they did not send their children to school as prescribed by the Government.

SECTION G.—Mechanical Science.

1. Heaton (Mr.), on the cause and prevention of the oscillation of locomotive engines upon railways.
2. Roberts (Mr.), on a machine for forming mouldings out of sheet-metal.
3. Appold (Mr.), on a centrifugal pump for draining marshes.
4. Davison (Mr.), on a desiccation process.
5. Parkinson (Mr.), on a patent water meter.

1. An ingenious model was exhibited and its action explained; of which we may suggest a very favourable opinion, when we say that Mr. Stephenson, Mr. Roberts, and other eminent engineers, approved of it as a valuable invention. Its principle seemed to be that when the parts of the engine that move in a horizontal line are not balanced, the engine oscillates, and that movement increases with the increase of the velocity; to remedy which, Mr. Heaton proposes to attach a weight with connecting rod, and an auxiliary crank, to the head of the crank pin, equal to the weight of the piston and its gearing, so as to make the weight run to the left hand at the same instant the piston goes to the right. The blow to stop the piston and make it return will be received in the auxiliary crank, instead of in the wheel, producing a neutral point in the centre, and steadiness of motion.

2. An extremely neat and apparently simple contrivance of shafts and rollers, by which the desired object is accomplished.

3. The model of a small pump, only one inch in diameter, capable of discharging ten gallons of water per minute, was exhibited. If of twelve inches diameter, it will discharge at the same speed of the outside circumference, on one-twelfth the number of revolutions, 1440 gallons per minute, which is according to the square of the diameter, and not according to the cubic contents. The writer considered that one ten feet diameter, of the best shape, will pump 140,000 gallons per minute, and so on in proportion.

4. The principle of this invention is, that in drying any body it is not simply heat that is required, but a current of air also—not merely a moving but a rapid current of air. It is the impulsion of atmospheric air at the velocity of the hurricane, or upwards of a hundred miles per hour, combined with the elementary heat, under perfect control, which constitutes the desiccating process. The means by which the two operations of current and heat are created are the following:—The apparatus consists of a series of cast iron pipes, so united together as to form one continuous pipe, these being set in brick-work with a common furnace in the centre. This is the heating medium, and the current is created by a common blowing fan, which can be driven at any required speed. With respect to the amount of metal or heating surface, it is found that for every thousand cubic feet of drying chamber, 10 cwt. of metal is required. The process has been extensively applied to the preparation of casks, to the drying of every kind of wood, and to yarns, thread, madder root, roasting coffee, &c.; and the writer affirms the process to be a true imitation of nature, or of those elements which are said to be the best seasons of wood—viz., the March wind and the summer heat. Of extraneous advantages he states that the greener the wood the easier and more perfect is the expulsion of moisture; the native strength of the fibre secured by the immediate evaporation of all vegetable juices or moisture likely to ferment and carry on decomposition; the gums are coagulated, and the texture of the wood brought into its most complete state of aggregation, so as to prevent the imbibition of moisture; shrinking is entirely obviated.

5. Mr. Parkinson's patent was described, and seemed to be very ingenious and accurate. [For some of the foregoing we have again to express our obligations to the *Birmingham Journal*.]

At half-past five o'clock there was a dinner in the Town-Hall, at half-a-guinea a head, and at which about four hundred persons assembled. The speeches of the President, the French Ambassador, and other magnates, went off well; but again we must refer to financial considerations in looking at entertainments of this kind, on the principle of "Yorkshire Club"

payments. Many of the followers of science are not over-burthened with wealth; and yet see what it must cost one of them to attend a Week's Meeting of the Association, should they happen to be unknown to and disregarded by the local administrators and inhabitants of the place.

Lodging (say moderately)	£2 0 0
The grand fete dinner	0 10 6
Seven Ordinary breakfasts	0 17 6
Ditto dinners, sans drink (stapence charged on Thursday for a glass of beer)	0 17 6
An excursion (less dinner)	0 10 0
"Some at" at night	0 7 0
Subscription	1 0 0
Travelling (medium distance)	1 7 6
Incidentals	0 10 0
	£8 0 0

At a low calculation; and if any indulgences, 4l. or 8l. more; making a large total expended by visitors in the places.

LITERARY AND LEARNED.

BRITISH ARCHEOLOGICAL ASSOCIATION.

Sept. 26th. — Council Meeting.—Several new associations were elected, and a valuable present of books, &c., announced from the Society of Antiquaries of the North, at Copenhagen. Specimens of the silver coins found at Newport, in the Isle of Wight, were exhibited by Mr. E. Wilkins, and Mr. J. H. Hearn, and communications on them by Mr. Hearn and Mr. John Barton were read.* The coins, it appears, are of Henry III., Edwards I., II., and III., of England, Alexander III., John Balliol, and Robert Bruce, of Scotland; and numerous coins of the Dukes and Counts of the neighbouring countries, as of John Duke of Brabant: John of Bohemia and Poland; and one of Louis of France. Only one halfpenny has been noticed. The mintages are London, Canterbury, Durham, York, Lincoln, Bristol, St. Edmundsbury, Newcastle, Chester, Berwick, Kingston, Dublin, and Waterford; the least numerous of these are those of Chester and Kingston. Mr. Hearn is inclined to think they were buried upon the alarm of the attack on Yarmouth (Eremue) and Newtown (Francherville), by the French in August, in the second year of the reign of Richard II. Mr. Barton suggests their having been deposited for concealment in the thirteenth year of Edward III., when the French landed in the Island, and committed great ravages. It is fortunate for numismatic science that the combined intelligence of these gentlemen, and the liberality of Mr. Perress, the owner, have secured a proper record of this interesting discovery. It is supposed, however, that many hundreds of the coins were carried off by the workmen. Mr. M. A. Lower communicated a curious relic in silver gilt, found in the churchyard of Alfriston, in Sussex. It comprises an ear-pick, a nail-pick, a tooth-pick, and a tongue-scraper, the last ingeniously contrived to protect the other three. It is inscribed THIS * HELP * ME * DIO. HERST. In the parish register of Alfriston, Mr. Lower found an entry referring to the owner of this instrument, under the head of "Buryalls a^d dni 1584. "Dennys Herst, buried the xiiij. of February." Some interesting drawings of capitals in one of the churches of Caen were received from M. de Formeville, secretary of the Society of Antiquaries of Normandy. They illustrate the legends represented on Mr. Seth Stevenson's casket, which formed the chief subject of Mr. Wright's paper, read at the Chester Congress, and, as rendering the elucidation more complete, the Norman sculptures

* While the classification of the coins was in progress we understand the Corporation of Newport have claimed and obtained possession of them, which as bullion, (and such only can they be in their eyes), are worth only a few pounds. It is supposed they will sell them as old silver, and have an extra civic dinner out of the proceeds. Mr. Sewell, on the part of the corporation, has threatened to issue warrants against all persons holding any of these coins, or trafficking in them! We remember the charge brought against the Corporation of London of forcing the finders to deliver up to them a large quantity of gold nobles of Edward III., found in excavating for new London Bridge. What became of them afterwards no one could learn, but it is certain they were not applied to a public or to any scientific purpose.—*Ed. L. G.*

have been ordered to be engraved. Mr. C. Baily announced that some excavations and repairs having been made in the cloisters of St. Bartholomew's church, West Smithfield, by Mr. Palmer, some architectural remains had been brought to light, which he (Mr. Baily) and other members of the Association were engaged in examining and delineating for the next public meeting. Some sculptures which had belonged to ancient buildings were in a good state of preservation, and of a very interesting character. The Council have suggested to the Guildhall Museum Committee, through Mr. Deputy Lott, the propriety of securing these remains for the said museum. Further communications on the Roman pavements at Cirencester were made, and on discoveries of Roman remains at Chester, and in the vicinity of Caerleon.

FINE ARTS.

Account of a Binocular Camera, and of a Method of obtaining Drawings of Full Length and Colossal Statues, and of Living Bodies, which can be exhibited as Solids by the Stereoscope. By Sir David Brewster, K.H., D.C.L., F.R.S., and V.P.R.S., Edin.

In explaining the construction and use of the lenticular and other stereoscopes, I have referred only to the duplication and union of the dissimilar drawings on a plane, of geometrical and symmetrical solids. The most interesting application, however, of these instruments, is to the dissimilar representations of statues and living bodies of all sizes and forms, and also to natural scenery, and the objects which enter into its composition. Professor Wheatstone had previously applied his stereoscope to the union of dissimilar drawings of small statues, taken by the Daguerreotype and Talbot processes; and in an essay on Photography, lately published, I have mentioned its application to statues of all sizes, and even to living figures, by means of a binocular camera. The object of the present paper is to describe the binocular camera, and to explain the principles and methods by which this application of the stereoscope is to be carried into effect.

The vision of bodies of three dimensions, or of groups of such bodies combined, has never been sufficiently studied, either by artists or philosophers. Leonardo da Vinci, who united, in a remarkable degree, a knowledge of art and science, has, in a passage of his *Trattato della Pittura*, quoted by Dr. Smith of Cambridge, made a brief reference to it, in so far as binocular vision is concerned; but till the publication of Professor Wheatstone's interesting Memoir, *On some Remarkable and hitherto Unobserved Phenomena of Binocular Vision*, the subject had excited no attention.

In order to understand the subject, we shall first consider the vision with one eye of objects of three dimensions, when of different magnitudes, and placed at different distances. When we thus view a building or a full-length or colossal statue, at a short distance, a picture of all its visible parts is formed on the retina. If we view it a greater distance, certain parts cease to be seen, and other parts come into view; and this change on the picture will go on, but will become less and less perceptible, as we retire from the original. If we now look at the building or statue from a distance through a telescope, so as to present it to us with the same distinctness, and of the same apparent magnitude, as we saw it at our first position, the two pictures will be essentially different; all the parts which ceased to be visible as we retired, will still be invisible, and all the parts which were not seen at our first position, but became visible by retiring, will be seen in the telescopic picture. Hence, the parts seen by the near eye, and not by the distant telescope, will be those towards the middle of the building or statue, whose surfaces converge, as it were, towards the eye, while those seen by the telescope, and not by the eye, will be the external parts of the object whose surfaces converge less, or approach to parallelism. It will depend on the nature of the building or the statue, which of these pictures gives us the most favourable representation of it.

If we now suppose the building or statue to be reduced in the most perfect manner,—to half its size, for example,—then it is obvious that these two perfectly similar solids will afford a different picture, whether viewed by the eye or by the telescope. In the reduced copy, the inner surfaces visible in the original will disappear, and the outer surfaces become visible; and, as formerly, it will depend on the nature of the building or the statue, whether the reduced or the original copy gives the best picture.

If we repeat the preceding experiments with two eyes in place of one, the building or statue will have a different appearance. Surfaces and parts, formerly invisible, will become visible, and the body will be better seen because we see more of it; but then, the parts thus brought into view, being seen, generally speaking, with one eye, will have only one-half the illumination of the rest of the picture. But though we see more of the body in binocular vision, it is only parts of vertical surfaces perpendicular to the line joining the eyes that are thus brought into view, the parts of similar horizontal surfaces remaining invisible as with one eye. It would require a pair of eyes placed vertically, that is, with the line joining them in a vertical direction, to enable us to see the horizontal as well as the vertical surfaces, and it would require a pair of eyes inclined at all possible angles, that is, a ring of eyes $2\frac{1}{2}$ inches in diameter, to enable us to have a perfectly symmetrical view of the statue.

These observations will enable us to answer the question, whether or not a reduced copy of a statue, of precisely the same form in all its parts, will give us, either by monocular or binocular vision, a better view of it as a work of art. As it is the outer parts or surfaces of a large statue that are invisible, its great outline and largest parts must be best seen in the reduced copy; and, consequently, its relief, or third dimension in space, must be much greater in the reduced copy. This will be better understood if we suppose a sphere to be substituted for the statue. If the sphere exceeds, in diameter, the distance between the pupils of the right and left eye, or $2\frac{1}{2}$ inches, we shall not see a complete hemisphere unless from an infinite distance. If the sphere is larger, we shall see only a segment, whose relief, in place of being equal to the radius of the sphere, is equal only to the versed sine of half the visible segment. Hence, it is obvious that a reduced copy of a statue is not only better seen from more of its parts being visible, but is also seen in stronger relief.

With these observations, we shall be able to determine the best method of obtaining dissimilar plane drawings of full-length and colossal statues, &c. &c., in order to reproduce them in three dimensions by means of the stereoscope. Were a painter called upon to take drawings of a statue, as seen by each eye, he would fix, at the height of his eyes, a metallic plate with two small holes in it, whose distance is equal to that of his eyes, and he would then draw the statue as seen through the holes by each eye. These pictures, however, whatever be his skill, would not be such as to reproduce the statue by their union. An accuracy, almost mathematical, is necessary for this purpose, and this can only be obtained from pictures executed by the processes of the Daguerreotype and Talbotype. In order to do this with the requisite nicety, we must construct a binocular camera which will take the pictures simultaneously, and of the same size; that is, a camera with two lenses of the same aperture and focal length, placed at the same distance as the two eyes. As it is impossible to grind and polish two lenses, whether single or achromatic, of exactly the same focal lengths, even if we had the very same glass for each, I propose to bisect the lenses, and construct the instrument with semilenses, which will give us pictures of precisely the same size and definition. These lenses should be placed with their diameters of bisection parallel to one another, and at the distance of $2\frac{1}{2}$ inches, which is the average distance of the eyes in man; and, when fixed in a box of sufficient size, will form a binocular camera, which will give us, at the same instant, with the same lights and shadows, and of the same size, such dissimilar pictures of statues, buildings, landscapes, and

living objects, as will reproduce them in relief in the stereoscope.

It is obvious, however, from observations previously made, that even this camera will only be applicable to statues of small dimensions, which have a high enough relief, from the eyes seeing, as it were, well around them, to give sufficiently dissimilar pictures for the stereoscope. As we cannot increase the distance between our eyes, and thus obtain a higher degree of relief for bodies of large dimensions, how are we to proceed in order to obtain drawings of such bodies of the requisite relief?

Let us suppose the statue to be colossal, and ten feet wide, and that dissimilar drawings of it about three inches high are required for the stereoscope. These drawings are forty times narrower than the statue, and must be taken at such a distance that, with a binocular camera having its semilenses $2\frac{1}{2}$ inches distant, the relief would be almost evanescent. We must, therefore, suppose the statue to be reduced n times, and place the semilenses of the binocular camera at the distance $n \times 2\frac{1}{2}$ inches. If $n = 10$, the statue will be reduced to $\frac{1}{10}$, or to 1 foot, and $n \times 2\frac{1}{2}$, or the distance of the semilenses will be 25 inches. If the semilenses are placed at this distance, and dissimilar pictures of the colossal statue taken, they will reproduce by their union a statue one foot high, which will have exactly the same appearance and relief as if we had viewed the colossal statue with eyes 25 inches distant. But the reproduced statue will have also the same appearance and relief as a statue a foot high, reduced from the colossal one with mathematical precision, and therefore it will be a better and a more relieved representation of the work of art than if we had viewed the colossal original with our own eyes, either under a greater, an equal, or a less angle of apparent magnitude.

We have supposed that a statue a foot broad will be seen in proper relief by binocular vision; but it remains to be decided whether or not it would be more advantageously seen, if reduced with mathematical precision to a breadth of $2\frac{1}{2}$ inches, the width of the eyes, which gives the vision of a hemisphere $2\frac{1}{2}$ inches in diameter, with the most perfect relief.

In the same manner we may obtain dissimilar pictures of living bodies, buildings, natural scenery, machines, and objects of all kinds, of three dimensions, and reproduce them by the stereoscope, so as to give the most accurate idea of them to those who could not understand them in drawings of the greatest accuracy.

The art which we have now described cannot fail to be regarded as of inestimable value to the sculptor, the painter, and the mechanist, whatever be the nature of his production in three dimensions. Lay figures will no longer mock the eye of the painter. He may delineate at leisure on his canvas, the forms of life and beauty, stereotyped by the solar ray and reconverted into the substantial objects from which they were obtained, brilliant with the same lights, and chastened with the same shadows as the originals. The sculptor will work with similar advantages. Superficial forms will stand before him in three dimensions, and while he summons into view the living realities from which they were taken, he may avail himself of the labours of all his predecessors, of Pericles as well as of Canova; and he may virtually carry in his portfolio the mighty lions and bulls of Nineveh—the gigantic sphinxes of Egypt—the Apollos and Venuses of Grecian art—and all the statuary and sculpture which adorn the galleries and museums of civilised nations.

FOREIGN CORRESPONDENCE.

FRANCE.

(From our own Correspondent.)

Paris, Thursday.

In a recent letter, I mentioned that a mass of the private correspondence of Calvin had recently been discovered in one of the public libraries of this country. I am now able to add that the Minister of Public Instruction has supplied the necessary funds for preparing it for publication; and it is probable that before many months shall have elapsed, it will

be presented to the world. The name of the great religious reformer would in itself suffice to give the letters a high literary and historical value; but it is said that they are really of intrinsic importance, and throw great and novel light on the events in which he played a part, and which had immense influence on the political and religious destinies of many of the nations of Europe.

In 1840, King Louis Philippe decreed that the Académie des Sciences Morales et Politiques, should draw up an account of the progress and state of the moral and political sciences, from 1789 to 1832, as a companion to, or completion of, a *tableau* which the Emperor Napoleon caused to be made in 1808, of the position and progress of literature, art, and science. Five learned academicians were specially deputed to prepare the required account:—Cousin for philosophy, De Tocqueville for morals, Dupin the elder, legislation, Mignet, history, Rossi, political economy. But from 1840 down to the present year of grace, nothing has been done, or, at least, nothing has been communicated either to the Academy or the public. Complaints have recently been made respecting this neglect, and imputations have even been cast on the worthy Academicians, as it appears that they received pecuniary advances to buy books and pay secretaries. The evidence taken by a Committee of the House of Commons on public libraries, has recently, it appears, excited some attention among you; and pains have, I observe, been taken by some of your journals, to represent the public libraries of Paris as infinitely better managed than that of the British Museum. But I, who was an *habitué* of the Museum Reading Room, and am an *habitué* of the Bibliothèque Nationale, should, as I have personal experience, unhesitatingly give the palm to the former. With the single exception that it does not allow books to be taken away, it is superior. First, it has a catalogue—not complete, it is true—but still sufficient for ordinary requirements; whereas, the Bibliothèque Nationale has not the ghost of a catalogue; so that unless you have the title of the book you need quite pat, it is impossible to get it. Next, the Museum Reading Room is, or at least was in my time, open from nine to four in winter, nine to seven in summer; whereas the Bibliothèque Nationale never opens before ten, and invariably closes at three—a period ludicrously insufficient for the literary drudge. In the third place, the closings for vacations in London were few and brief: in Paris they are many and long; since the 31st of the last month, for example, the Bibliothèque has been closed, and will remain so till the 1st November—a whole month, with nearly as long a period at Easter, and innumerable *fête* days. Then again, at the Museum, nothing could exceed the politeness of the officials, and their readiness to give you every information in their power: in Paris, on the contrary, politeness is not cultivated, and as to information you cannot get it. There are, besides, sundry minor grievances to be alleged against the Bibliothèque Nationale; but, passing them over, I will merely remark that the lending out of books causes almost as much inconvenience as advantage, for nothing is more common, when applying for a book, than to be told that it is out; and *il est sorti, Monsieur*, is a very convenient and very frequent excuse for the attendants to save themselves the trouble of looking for what you want.

A scheme has been submitted to the Société Géographique, by M. Bodichon, and also, I believe, to the Académie des Sciences, for sending an expedition from Algeria to a place often talked of, but little known—Timbuctoo. It is proposed that the expedition should be on a grand scale, headed by men of eminence in different branches of science and commerce, and be defended by 800 well armed Europeans and between 300 and 400 Africans. It is recommended that it should proceed by Gardia, a town of the tribe of the Beni-Mzab, about fifteen days' journey from Algiers, and then to Metlili, El Golen, In Salab, Agabli, Mabronk, and finally Timbuctoo. The distance from Algiers to Timbuctoo is about 600 leagues, and the journey it is calculated would require between seventy and eighty days. If the necessary funds can

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